



**POWERFUL & HOMOGENEOUS
SEMI-COLLIMATED BACKLIGHT**

COLLIMATED MEDIUM CMBACK +

▷ QUALITY CONTROL WITH CAMERA ▷ MACHINE VISION SYSTEM ▷ HIGH POWERFUL LED ▷ ULTRA-THIN BORDERS ▷ HOMOGENEOUS LIGHTING SYSTEM ▷ SEMI-COLLIMATION

**POWERFUL COLLIMATED BACKLIGHT, HOMOGENEOUS
AND EASY TO INCORPORATE**

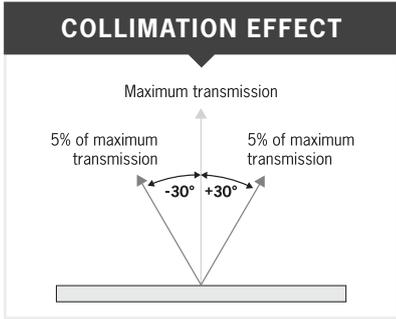


- ✓ homogeneous powerful backlight,
- ✓ deletion of non-perpendicular beams,
- ✓ ultra-thin borders.

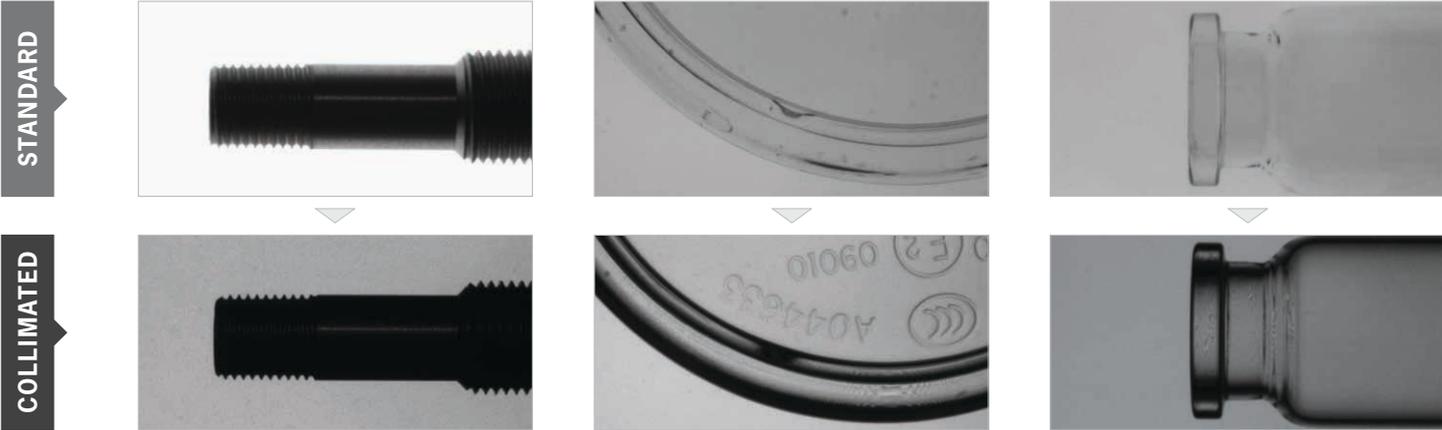
3 VERSIONS
Besides the **Standard version**, there are 2 other versions:

OVERDRIVE VERSION
Power customisable by the user, overdrive up to **x3**

EXPERT VERSION
Light managed by a remote controller overdrive up to **x6**



USAGE EXAMPLES



TECHNICAL SPECIFICATIONS

	CMBACK+	CMBACK+ OVERDRIVE	CMBACK+ EXPERT
Electronics			
Power supply	24 VDC \pm 10%		External current controller (not supplied)
Functioning mode	Continuous or strobe		
Strobe input	PNP : From 5 to 24V for 100% ON. From 0 to 1V for 100% OFF. NPN : less than 1V for 100% ON. Above 2V for 100% OFF. Max 20V.		N/A
Overdrive	No	Yes	According to power supply
Strobe Conditions (On time, duty cycle)	No restriction	3ms @ 10% at max power	300 μ s @ 5% at max power
Dimming	Potentiometer 30-100%		N/A
Maximum rising time	25 μ s		According to power supply
Maximum falling time	15 μ s		According to power supply
Wiring	1 connector M12 T-Power 12A 4 poles or 1 cable 4x1,5 ²	1 connector M12 T-Power 12A 4 poles or 1 cable 4x1,5 ²	1 cable 4x1,5 ²
Power supply cable(s) max length	Wire M12 : 10m (not supplied)	Wire M12 : 10m (not supplied)	10m
Max consumption	1,32W par 25cm ² in peak and on average	3W/25cm ² in peak max 0,43W/25cm ² max on average (3ms@10%)	7,8W/25cm ² in peak max 0,54W/25cm ² max on average (300 μ s@5%)
Optics			
Colour	White, Red, Green, Blue, Infrared		
Mechanics			
Thickness (mm)	45mm		
Surface	Mini 200x200mm – Max 400x400mm		
Weight	23.2 Kg/m ² \pm 15%		
Body materials	Aluminum and loaded ABS		
Diffuser	White PMMA		
Fixing	4 M4 nuts (supplied) to insert in the groove or 4 M3x20 screws (not supplied)		
Environment			
Operating temperature	-10° to +40°C / 80% of humidity without condensation / No thermal shock (max temperature variation: 10°C in 24h)		
Storage temperature	-20° to +60°C / 80% of humidity without condensation / No thermal shock (max temperature variation: 10°C in 24h)		
IP protection	IP 40		
Labels	RoHS-CE-WEEE		

AVAILABLE DIMENSIONS

CMBACK+ (Standard, Overdrive & Expert)			
Length \ Width	200	300	400
200	✓	✓	✓
300		✓	✓
400			✓

PRESENTATION

The CMBACK+ is a backlight both powerful and very diffuse, dedicated to many machine vision applications. Thanks to high powerful LED and specific lenses, it creates very intense luminous flux, that helps cameras to see workpieces shapes. The Collimated Medium CMBACK+ is also manufactured with filters, which enable to delete the non-perpendicular beams (>30° compared to the vertical axis of the lighting surface). This semi-collimation helps to get highly contrasted images. This product is recommended for the edge detection of round

or thick workpieces, and also for the detection of markings or material defects on transparent workpieces (made of glass or plastic).

Equipped with a strobe entry and a potentiometer, it enables to vary the lighting power. Besides the Standard version, there is an OVERDRIVE version and also an EXPERT version (with no current control inside), that offers more power and driving possibilities.

Either in continuous or in strobe mode, it has short rising and falling times: 25 μ s and 15 μ s.

Thanks to its thin edges, the Collimated Medium CMBACK+ uniformly illuminates from the whole useful surface. Moreover, the connector can be placed on any side, so that the light can then be set up on any kind of conveyor belts. At the basis of the connector, 2 LED show if the product is powered and if the strobe mode is on. The Collimated Medium CMBACK+ is available in various wavelengths and also in various dimensions.

3 VERSIONS AVAILABLE

The **STANDARD version** is very easy to use: you don't have to adjust anything, only to plug the light. The STANDARD version works in continuous and strobe mode, with rising and falling times especially short: 25 μ s and 15 μ s. The STANDARD version generates a high powerful light, that fits most machine vision applications. Moreover, some LED, close to the connector, show if the light is powered, and if the strobe mode is on, for a better use of the product. Besides the **STANDARD Version**, 2 other versions are available : OVERDRIVE and EXPERT.



OVERDRIVE UP TO x3 WITH CURRENT CONTROL INSIDE

The OVERDRIVE version is just as easy to set and to use as the STANDARD version. Equipped with specific electronics, it gives the opportunity for users to overdrive on their own the lighting power. The OVERDRIVE version is dedicated to specialists who want to customize the luminous flux very precisely, so as to get the most reliable results.



OVERDRIVE UP TO x6 WITH YOUR OWN CONTROLLER

In the EXPERT version, the products do not have any current controller, which is very useful for users who want to work with their own controllers. In strobe mode, they can use the EXPERT lights in overdrive, so as to get a more intense lighting power. The EXPERT version definitely targets machine vision specialists, able to manage a whole vision system.

RELATED PRODUCTS

Cable – M12 female 4 pins T-Power	
	
2 meters	Ref: C-M12-4P-T-2M
5 meters	Ref: C-M12-4P-T-5M
10 meters	Ref: C-M12-4P-T-10M

Safety glasses

Ref: EYE-PROTECT

HOW TO BUILD YOUR REFERENCE

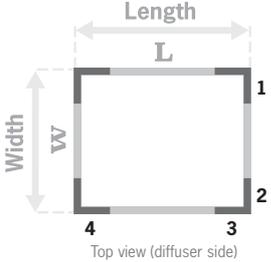
CMBACK	VERSION	L LENGTH (CM)	W WIDTH (CM)	COLOUR
	STANDARD	20	20	WHI 
	O OVERDRIVE	30	30	630 
	E EXPERT	40	40	525 
				470 
				850 

The first figure shall always be the biggest one.

WIRING	
TYPE	POSITION
M CONNECTOR M12*	1
A CABLE 2.5 m	2
B CABLE 5 m	3
C CABLE 10 m	4

*T-Power M12 connector for STANDARD and OVERDRIVE versions only

WIRING CHOICE		
STANDARD	OVERDRIVE	EXPERT
 Connector M12 T-Power OR  Cable 2.50m OR 5m OR 10m	 Connector M12 T-Power OR  Cable 2.50m OR 5m OR 10m	 Cable 2.50m OR 5m OR 10m

POSITION CHOICE	
 <p>Top view (diffuser side)</p>	

REFERENCE EXAMPLES:

CMBACK+ STANDARD 30x20 cm White LED Connector M12 T-Power position n°4:
 ➔ CMBACK-3020-WHI-M4

CMBACK+ OVERDRIVE 40x40 cm Red LED Cable 5 meters position n°2
 ➔ CMBACK-O-4040-630-B2

CMBACK+ EXPERT 20x20 cm Blue LED Cable 10 meters position n°3
 ➔ CMBACK-E-2020-470-C3

TPL VISION IS EXTREMELY CAREFUL ABOUT BIN SORTING IN THE SELECTION OF LEDs FOR THEIR PRODUCTS.

The human eye is particularly sensitive to color variations. Two products of the same color may appear different in the eyes of the user. However, **the maximum variation of the wavelength DOES NOT EXCEED 10 NM.**

Here are the following bandpass camera filters we recommend:

- White LEDs: no filter required
- Infrared LEDs: LP 830 (<http://midopt.com/filters/lp830/>)
- Red LEDs: BP 635 (<http://midopt.com/filters/bp635/>)
- Cyan LEDs: BP 505 (<http://midopt.com/filters/bp505/>)

We advise using bandpass filters from MidOpt: www.midopt.com

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Other available documents :

- PDF, DWG, DXF, IGS, STEP & X_Y DRAWINGS
- USER'S GUIDE

