



## MR - DARK FIELD

A MODULAR RINGLIGHT ILLUMINATION

► MACHINE VISION ► HIGH POWER LED ► DARK FIELD ILLUMINATION ► BI-COLOR RING ► 4 INDEPENDENT QUADRANTS ► OVERDRIVE ► REMOTE CONTROL

## INNOVATIVE LED ILLUMINATION WITH DARK FIELD EFFECTS

### 2 SIZES

80 mm

OR

130 mm

### 2x2 COLOURS



OR

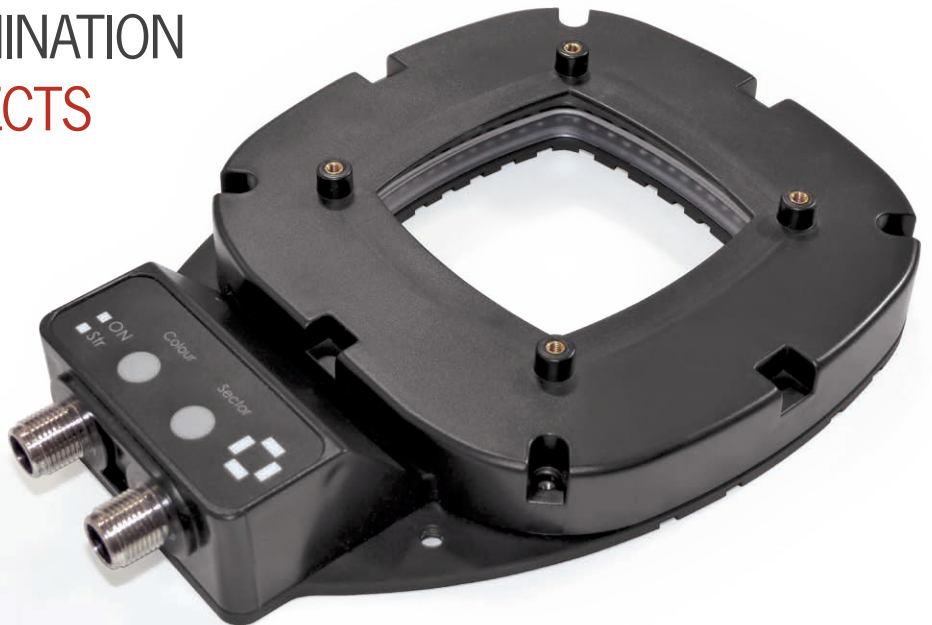


### CONTROL

manual

OR

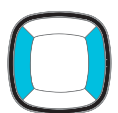
remote



IP65



OVERDRIVE



4 QUADRANTS

The MR-DARK FIELD is compound of a bi-colour LED lighting ring (2 sets of colours and 2 dimensions) and a dark field reflector.

It has been designed with tough production environments in mind: IP65 as standard, overdrive embedded, simple remote control capability (selection of colours & quadrants).

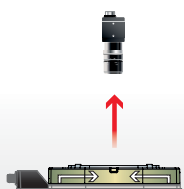
The MR-DARK FIELD provides an illumination that highlights the edges of a surface and minimises the light reflected from flat surfaces.

### DARK FIELD REFLECTED LIGHT CAN BE USED WHEN:

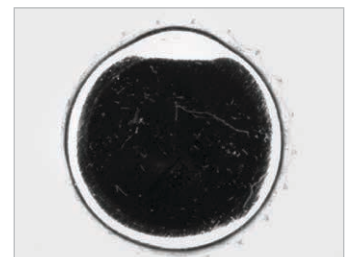
- the target areas are «sharp»/«narrow» in profile (such as edges),
- no illumination of a flat surface is required,
- the target area has «points» to inspect, such as electrical connector pins.

The MR-DARK FIELD should be mounted just above the object of interest to maximise the effect of the illumination style. Moving the reflector further away from the object will significantly reduce the effectiveness of the Dark Field Illumination effect.

LIGHTING METHOD



DARK FIELD



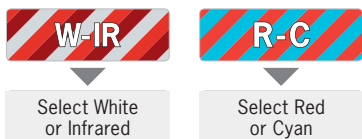
## MANUAL SETTINGS



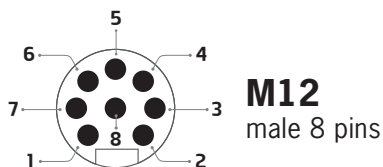
**SECTORS:** 3 configurations



**COLOURS:** 2 sets



## REMOTE SETTINGS



- 1 Activate overdrive
- 2 Change colours
- 3 GND
- 4 Sector 1
- 5 Sector 2
- 6 Sector 3
- 7 Sector 4
- 8 Deactivate manual sector drive

## LIGHTING POWER

	RING 80				RING 130			
	RED (cd)	CYAN (cd)	WHITE (cd)	IR (mW/Sr)	RED (cd)	CYAN (cd)	WHITE (cd)	IR (mW/Sr)
<b>Standard</b> (distance: 0 cm)	43	55	300	150	65	82	445	220
<b>Overdrive</b> (distance: 0 cm)	172	195	1 200	600	260	286	1 830	900

## TECHNICAL SPECIFICATIONS

Dimensions	80mm	130mm
Electronics		
Power Supply	24 VD/C ±10%	
Functioning Mode	Continuous, Strobe, Overdrive, Dimming, Manual Control	
Rising Time	10 µs	
Falling Time	10 µs	
Wiring	5 Pin M12 male connector for manual, 8 Pin M12 male connector for remote control	
Max. consumption Red-Cyan	9W average / 51W peak	11W average / 82W peak
Max. consumption WHHR	10W average / 42W peak	13W average / 62W peak
Optics		
Colour	Red (625nm) - Cyan (505nm) and White (WHI) - Infrared (860nm)	
Number of LEDs	96	144
Mechanical		
Dimensions (external)	136 x 193 mm	197 x 257 mm
Height	27.5 mm	27.5 mm
Weight	400 g	630 g
Material	Aluminum & ABS	
Mounting/Fixing	2x M5 Screws	
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 65	
Labels	RoHS-CE-WEEE	

## HOW TO BUILD YOUR PRODUCT REFERENCE

### REQUIRED SETTINGS

MR	USEFUL DIMENSION	COLOUR	VERSION
	80 130	WIR RC	DF DARK FIELD

### EXAMPLES :

MR - DARK FIELD 80mm white-IR LEDs → **MR-80-WIR-DF**  
MR - DARK FIELD 130mm red-cyan LEDs → **MR-130-RC-DF**

## BINNING INFORMATION

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

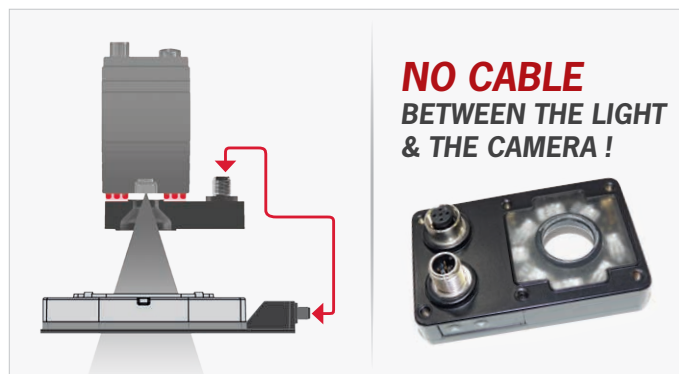
Specifically for the Cyan series on this product, the human eye is very sensitive to colour variations. It may appear to the customer that they do not appear the same between two cyan LED products. Despite any noticeable differences, **the peak wavelength variation DOES NOT EXCEED 10NM.**

Here are the following bandpass camera filters we recommend to fit with the MR - DARK FIELD:

- 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](http://www.midopt.com)


## OPTICAL TRIGGER



The **Optical Trigger** is an easy solution to connect the MR-DARK FIELD to your smart camera, **without a wired connection**. Whenever the camera's **embedded light** is on, the Optical Trigger automatically sends a signal to the external light. Using the Optical Trigger, you can get a perfect **synchronization** of the MR-DARK FIELD with the camera software very easily.

## RELATED PRODUCTS: CABLES

M12 female 8 pins cable	
REMOTE CONTROL	
	
3 meters	Ref: C-M12-8P-3M
5 meters	Ref: C-M12-8P-5M
10 meters	Ref: C-M12-8P-10M

M12 female 5 pins cable	
POWER SUPPLY	
	
2 meters	Ref: C-M12-5P-2M
5 meters	Ref: C-M12-5P-5M
10 meters	Ref: C-M12-5P-10M

M12 female / male 5 pins cable	
MR - DARK FIELD / OPTICAL TRIGGER	
	
0.3 meters	Ref: RA-M12-FM-5P-0.3M

### OTHER PRODUCTS FROM THE MODULAR RINGLIGHT PLATFORM



MR - RING



MR - LOW ANGLE



MR - DOME

Features and presentations liable to modifications without prior notice. Ref.TS-060201-B1, 2019/12 Edition.

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#### Other available documents :

- PDF, DXF, STEP DRAWINGS (on demand)
- USER GUIDE

#### MR - DARK FIELD

