VL-DFF Dark Field Light

Low-angle LED ring light for dark-field illumination, 6 sizes, red or white, 24 V DC



KEY DATA

Light type
Low-angle LED ring light for dark-field illumination

Colours and wavelength
Red 625 nm · White 6500 K

Sizes (A × B)
40 × 80 to 355 × 395 mm, 6 sizes (see model table)

Supply voltage
24 V DC

Overview

The VL-DFF is a low-angle LED ring light for dark-field illumination. Light grazes the surface, so edges, scratches, grooves, dents and engravings appear bright against a dark background — also on parts with the same colour as the background.

Key features

- Low-angle light for dark-field illumination
- High-intensity LEDs
- Compact design, 15.5 mm high
- Aluminium PCB and heat-transfer pads for a longer life
- Intensity mode set with a DIP switch (continuous mode)
- Red 625 nm or white 6500 K; IR 850 nm and UV 365 nm on request
- 24 V DC, M8 4-pin connector, IP50

Technical specifications

Light type	Low-angle LED ring light for dark-field illumination
Sizes (A × B)	40 × 80 to 355 × 395 mm, 6 sizes (see model table)
Height (C)	15.5 mm
Colours and wavelength	Red 625 nm · White 6500 K
Infrared and UV	IR 850 nm and UV 365 nm on request
Light angle	120°
Supply voltage	24 V DC
Power consumption	2 – 15 W depending on size and colour (see model table)
Intensity setting	DIP switch, continuous mode (100 % ON)
Trigger input	None
Connection	M8 4-pin connector on a 300 mm cable
Degree of protection	IP50
Housing	Aluminium, black anodised; aluminium PCB and heat-transfer pads

EMC	2014/30/EU — EMC Directive (EN IEC 55015:2019+A11:2020, IEC 61547:2020)

Models and ordering codes

Model	Colour	Wavelength / colour temperature	Power	A × B	C
VL-DFF-40-80-R-24-C30	Red	625 nm	2 W	40 × 80 mm	15.5 mm
VL-DFF-40-80-W-24-C30	White	6500 K	2.5 W	40 × 80 mm	15.5 mm
VL-DFF-103-143-R-24-C30	Red	625 nm	4 W	103 × 143 mm	15.5 mm
VL-DFF-103-143-W-24-C30	White	6500 K	5 W	103 × 143 mm	15.5 mm
VL-DFF-165-205-R-24-C30	Red	625 nm	6.5 W	165 × 205 mm	15.5 mm
VL-DFF-165-205-W-24-C30	White	6500 K	7.5 W	165 × 205 mm	15.5 mm
VL-DFF-230-270-R-24-C30	Red	625 nm	8.5 W	230 × 270 mm	15.5 mm
VL-DFF-230-270-W-24-C30	White	6500 K	10 W	230 × 270 mm	15.5 mm
VL-DFF-290-330-R-24-C30	Red	625 nm	11 W	290 × 330 mm	15.5 mm
VL-DFF-290-330-W-24-C30	White	6500 K	12.5 W	290 × 330 mm	15.5 mm
VL-DFF-355-395-R-24-C30	Red	625 nm	13 W	355 × 395 mm	15.5 mm
VL-DFF-355-395-W-24-C30	White	6500 K	15 W	355 × 395 mm	15.5 mm

All models: 24 V DC, M8 4-pin connector on a 300 mm cable, IP50, continuous mode. IR (850 nm) and UV (365 nm) versions on request.

Electrical connection

M8 4-pin connector on a 300 mm cable. Only pins 1 (+24 V DC) and 3 (GND) are used.

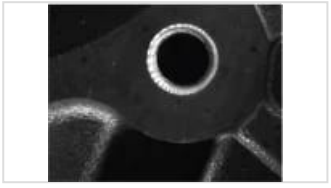
Pin	Function	Wire colour
1	Power in +24 V DC	Brown
2	Not connected	White
3	GND	Blue
4	Not connected	Black

The light has no trigger input; it is switched on with the 24 V DC supply.

Sample applications



Edge detection, edge defects, positioning of low-contrast parts



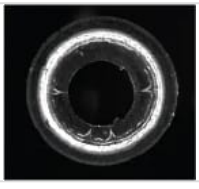
Groove and scratch detection, edge-based diameter measurement



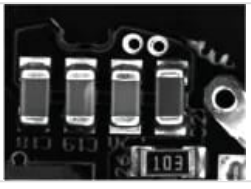
Ball bearing inspection, round object check



Edge-based positioning, low colour-contrast identification



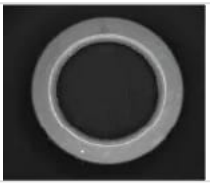
Edge crack and dent inspection



Part detection on PCBs, height-difference detection



Positioning relative to edges, part identification

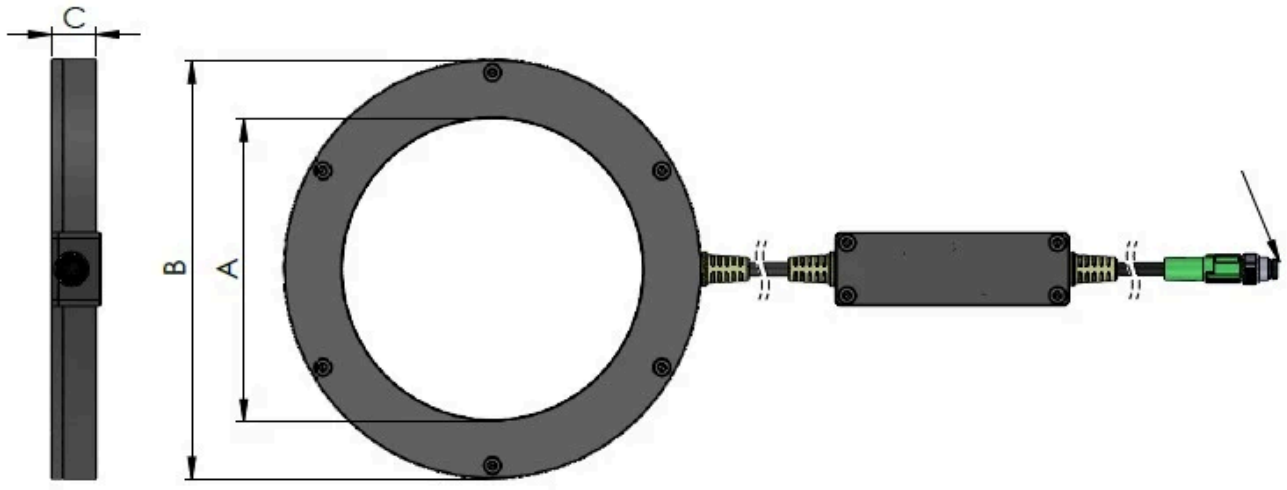


Detection of parts with the same colour as the background

Accessories

Ordering code	Description	Suitable for
TKPM-Z-5/4	M8 female connector, straight, 4-pin, PVC cable 4 × 0.25 mm², 5 m, open end, IP67	All VL-DFF models

Dimensional drawing



VL-DFF dimension sketch: ring dimensions A, B and height C, in-line control box and M8 connector

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