VL-DFF Dark Field Light

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



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1 Intended use

The VL-DFF dark-field light is designed for industrial machine vision: detection of edges, scratches, grooves, dents and engravings. It illuminates the part at a very low angle and is positioned close above the part.

The device must be operated only within the limits specified in the technical data and installed according to this manual. The system must be designed so that no person is endangered and machines and other equipment are not damaged in the event of a malfunction or total failure. Take additional precautions where the application is safety-related.

2 Technical information

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

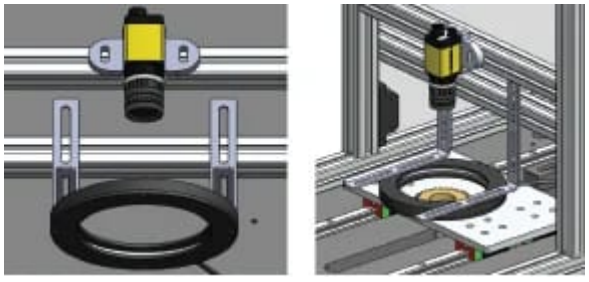
Power consumption	2 – 15 W depending on size and colour (see model table)
Intensity setting	DIP switch, continuous mode (100 % ON)
Trigger input	None
Connection	M8 4-pin connector on a 300 mm cable
Degree of protection	IP50
Housing	Aluminium, black anodised; aluminium PCB and heat-transfer pads
EMC	2014/30/EU — EMC Directive (EN IEC 55015:2019+A11:2020, IEC 61547:2020)

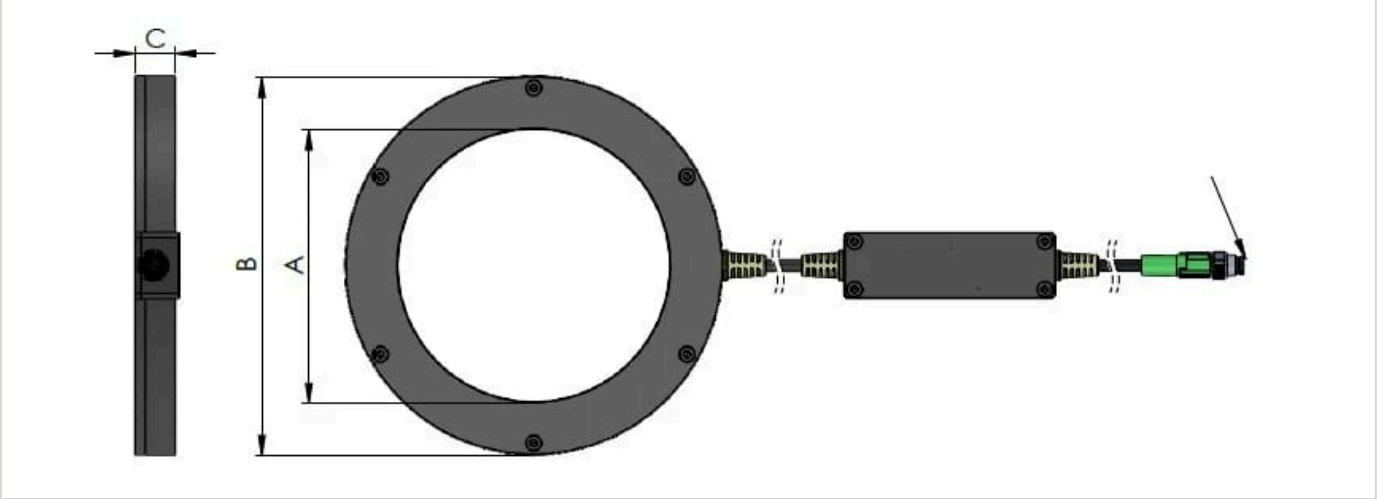
Model	Colour	Wavelength / colour temperature	Power	A × B	C
VL-DFF-40-80-R-24-C30	Red	625 nm	2 W	40 × 80 mm	15.5 mm
VL-DFF-40-80-W-24-C30	White	6500 K	2.5 W	40 × 80 mm	15.5 mm
VL-DFF-103-143-R-24-C30	Red	625 nm	4 W	103 × 143 mm	15.5 mm
VL-DFF-103-143-W-24-C30	White	6500 K	5 W	103 × 143 mm	15.5 mm
VL-DFF-165-205-R-24-C30	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.

3 Dimensions and installation

Operating the system requires knowledge of the assembly instructions. The signal words used are explained in the section Safety.





4 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.

5 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

6 Faults

- Do not open the product in any of the cases below or in any other case.
- If the LEDs do not light up, check the connection and the power supply.
- If the LEDs still do not light up, contact FÖGE or your distributor.

7 Warnings

- Connect the power supply and the display/output device according to the safety regulations for electrical equipment.
- The supply voltage must not exceed the specified limits.
- Avoid shocks and impacts to the device.
- Protect the cable against damage.

Possible consequences of non-observance: risk of injury by electric shock; damage to or destruction of the device.

8 Safety

Operating the system requires knowledge of the assembly instructions. The following signal words are used in these instructions:

Signal word	Meaning
WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
NOTICE	Indicates a situation that may result in property damage if not avoided.
ELECTRIC SHOCK	Indicates a risk of electric shock if the instructions are not followed.

9 Liability for material defects

All components of the device have been checked and tested for functionality at the production facility. If defects occur despite our careful quality control, FÖGE or your dealer must be notified immediately.

The liability for material defects is 12 months from delivery. Within this period, defective parts, except wearing parts, are repaired or replaced free of charge if the device is returned to FÖGE with shipping costs prepaid. Damage caused by improper handling, the use of force, or repairs or modifications by third parties is not covered. Repairs are carried out exclusively by FÖGE.

Further claims cannot be made. Claims arising from the purchase contract remain unaffected. In particular, FÖGE shall not be liable for any consequential, special, indirect or incidental damage. In the interest of further development, FÖGE reserves the right to make design changes without notice.

10 Decommissioning and disposal

Disconnect the power supply and the output cable from the device.

Incorrect disposal may harm the environment. Dispose of the device, its components and accessories, and the packaging materials in compliance with the waste treatment and disposal regulations applicable in the country and region of use.