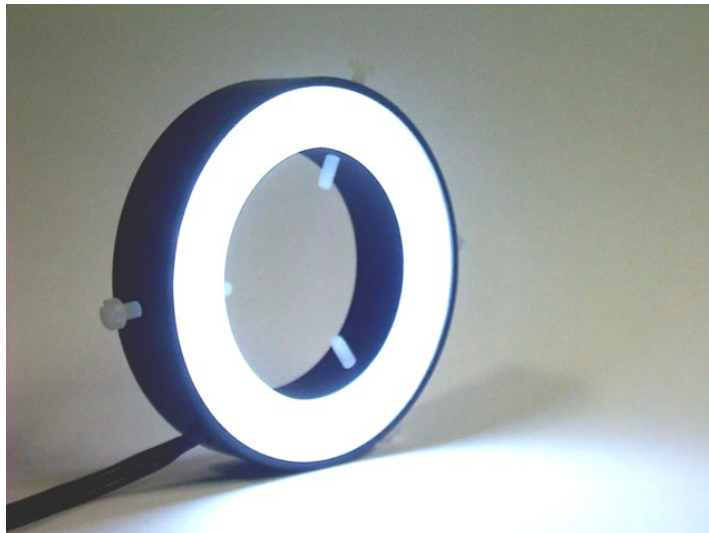


RINGLIGHT-CLS49



Application Note

Edition January 2002

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1 The RINGLIGHT-CLS49

The RINGLIGHT-CLS49 represents an expansion of PHYTEC's digital image processing product line. The RINGTLICHT-CLS49 is especially designed for use in combination with our cameras. A choice of lighting color enables adaptation to the requirements of the object and environment in question as well as the camera being used.

- „red“ => Optimization for black/white cameras
- „white“ => Optimization for color cameras

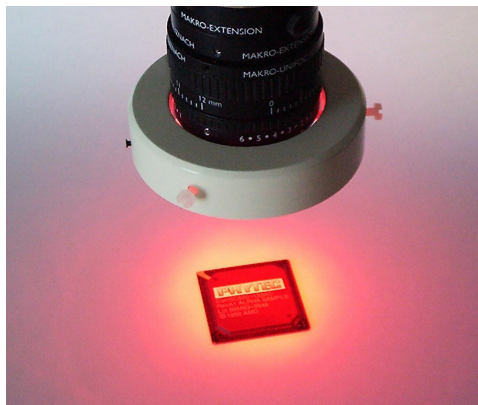


Figure 1: Using the RINGLIGHT-CLS49 in a User Application

The light intensity can be adjusted without intervals. Of great advantage is the fact that the color temperature remains unaffected by the selected light intensity. This guarantees maximized flexibility in adapting lighting to each photographic situation. In addition a selection of focussing rings enables adaptation to whatever the desired lighting range might be. There are three different focussing ring variants.

With three assembly screws the RINGLIGHT-CLS49 can easily be attached to nearly all of our video lenses. The RINGLIGHT-CLS49 is an ideal lighting system, in that it simply and inexpensively provides brilliant and even illumination without shadows.

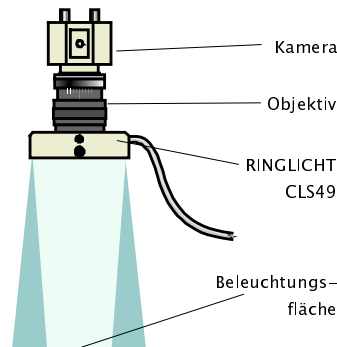


Figure 2: Image of the RINGLIGHT-CLS49 in a User Application

1.1 Assembly of the RINGLIGHT-CLS49

The RINGLIGHT-CLS49 comes with three assembly screws (one set of M3x16 and one set of M3x20 screws is included in the delivery contents) with which it can be attached to an objective lens with a diameter ranging from 27 mm to 49 mm. The screws are made of plastics in order to prevent damage to the surface of the objective lens housing.

1.2 Power Supply

The regulated RINGLIGHT-CLS49 (VZ-00X) can be supplied with a 10 V to 18 V regulated DC voltage (models VZ-001 and VZ-002) or 20 V to 32 V regulated DC voltage (models VZ-003 and VZ-004), whereby the light intensity does not vary noticeably.

The unregulated RINGLIGHT-CLS49 (VZ-00X-U) must be supplied by an external constant power source. The current level cannot exceed 160 mA (VZ-001-U and VZ-002-U) or 80 mA (VZ-003 and VZ-004) during continual operation.

The current level can be increased momentarily ($< 1^{\circ}\text{s}$) in order to increase the light intensity by a factor of 2 – 4.

Caution:

Extended operation at higher than specified current level reduces the life time of the RINGLIGHT-CLS49. When using the white light variant (VZ-001-U and VZ-003-U) this can result in a permanent change of the color temperature.

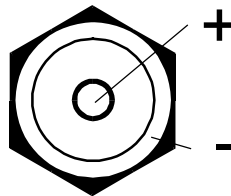


Figure 3: Pinout of the RINGLIGHT-Socket

Caution:

If the RINGLIGHT-CLS49 does not illuminate after attaching the power supply please check for the correct polarity. Reversed polarity will **NOT** damage the device! Please connect the correct polarity and attach the power supply again.

1.3 Structure and Function of the RINGLIGHT-CLS49

1.3.1 Brightness Setting

The RINGLIGHT-CLS49 has an adjustable brightness setting. Using a screw driver, the brightness settings can be pre-selected. As long as the RINGLIGHT-CLS49 is operating within the allowable voltage range (*see section 2*), the brightness remains independent of supply voltage variations. Brightness settings can be adjusted on the upper portion of the RINGLIGHT-CLS49 housing.

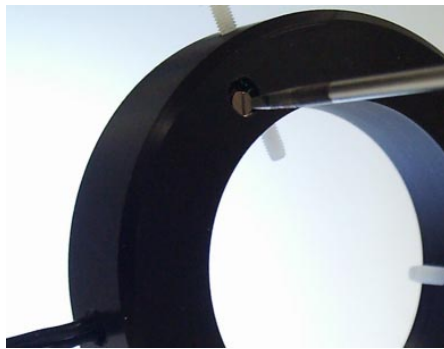


Figure 4: Brightness Regulator on the Housing

Caution:

The brightness regulator can be turned in a circle of 360°. However, it only functions in a 270° range. If the brightness of the RINGLIGHT-CLS49 should vary (flicker), or if the brightness settings do not function, then the regulator has to be turned back somewhat.

1.3.2 Focussing Rings

The RINGLIGHT-CLS49 has three attachable focussing rings for adaptation to various lighting situations.

- AZ-014: Focussing characteristics
- AZ-015: Slightly scattered characteristics
- AZ-016: Heavily scattered characteristics

Likewise, these rings are used for adaptation to different object surface characteristics:

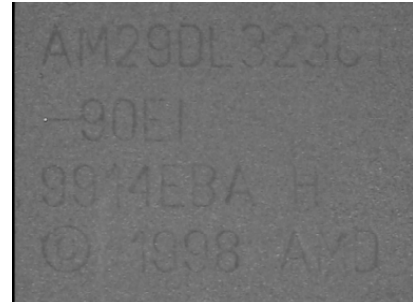
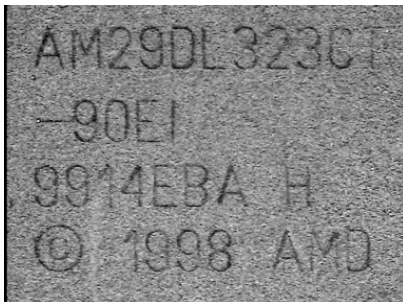


Figure 5: Chip inscription with Focused Lighting (Photograph to the Left, Quality is Better) and with Diffused Lighting (Photograph of the Right, Quality is Worse)

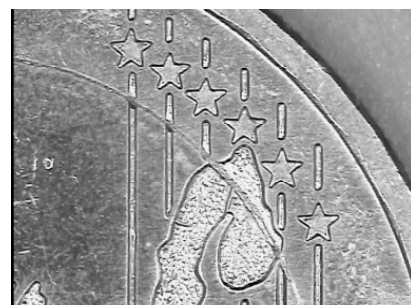
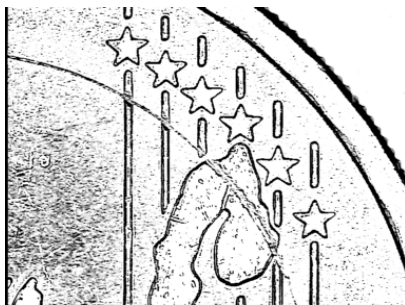


Figure 6: Coin with Focussed Lighting (Photograph to the Left, Quality is Worse) and Diffused Lighting (Photograph to the Right, Quality is Better)

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To switch focussing rings first turn the screw clamp with a screwdriver a few times counter clockwise. The focussing ring can then be removed easily.

Put the new ring in place and turn the screw clamp clockwise until the focussing ring is secure.

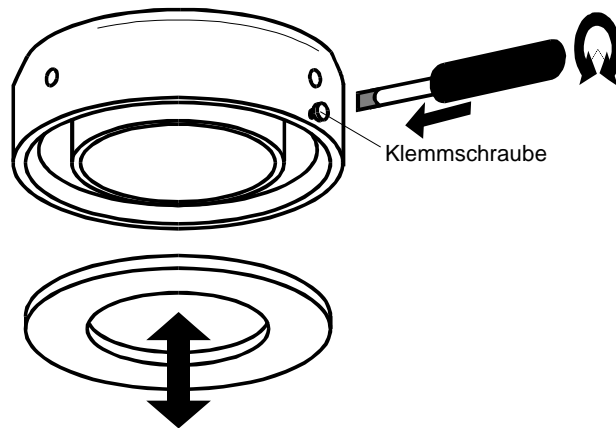


Figure 7: Insertion and Removal of a Focussing Ring

1.4 Safety Instructions

Caution:

NEVER look directly into the light beam or the LEDs when the RINGLIGHT-CLS49 is in operation. This could result in serious injuries to your eyes.

2 Technical Highlights

Max. Light Intensity:	VZ-001/VZ-003 :	72 000 mcd
	VZ-002/VZ-004 :	200 000 mcd
Number of LEDs:		24
Colors:	VZ-001/VZ-003:	white
	VZ-002/VZ-004:	red (630 nm)
Current Draw:	VZ-001/VZ-002:	<160 mA
	VZ-003/VZ-004:	<160 mA
Operating Voltage:	VZ-001/VZ-002:	10 V..18 VDC
	VZ-003/VZ-004:	20 V..32 VDC

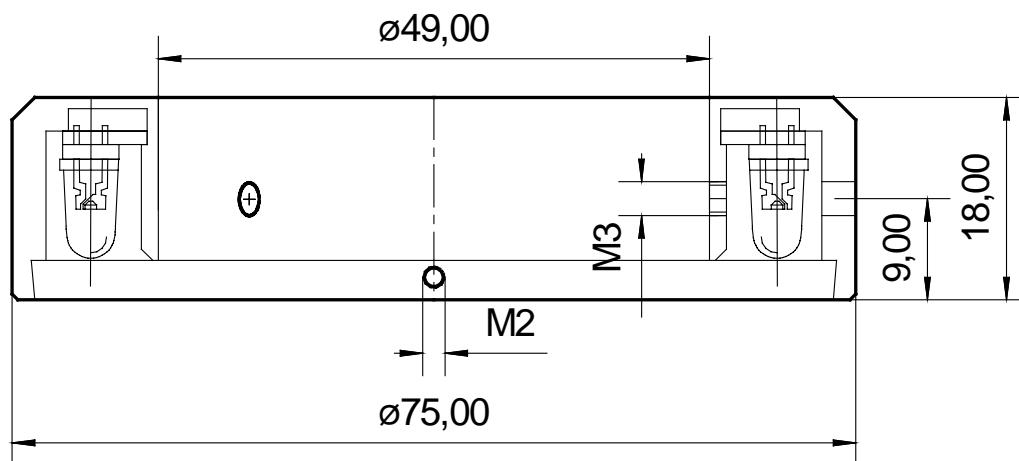


Figure 8: Connector Measurements of the RINGLIGHT-CLS49

Document: RINGLIGHT-CLS49
Document number: LAN-010e_1, January 2002

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