

1) Receiver, 2) Display and control panel, 3) Emitter



## Basic features

<b>Approval/Conformity</b>	CE WEEE cULus UKCA
<b>Basic standard</b>	IEC 60947-5-2
<b>Principle of operation</b>	Light array
<b>Scope of delivery</b>	Holding system Connection cable (emitter - receiver) Manual
<b>Series</b>	D
<b>Style</b>	Square Straight connection

## Display/Operation

<b>Adjuster</b>	Key (4x)
<b>Display</b>	Communication - Green LED, flashing CCD signal - OLED display Setting menu - OLED display Measuring mode - OLED display Analog meas.val. - OLED displ. Object in meas. field - LED orange Object mode - OLED display Object number - OLED display Object visualization - OLED display Meas.field limits - OLED disp

Photoelectric Sensors  
**BLA 32D-002-S4**  
Order Code: **BLA0009**

**BALLUFF**

Setting	Measurement mode (2 independent measurement values) Object mode (digital values) Meas.field limits Factory setting (Reset) Output active/inactive Teach in objects (max. 6) Key disable on/off Read direction of the OLED display Contrast of the OLED display OLED display on/off Normalize CCD signal Align via CCD signal disp. Signal scaling Setting block Averaging mode Object detection tolerance
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### Electrical connection

Connection	Connector, M12x1-Male, 4-pin
Connection 2	M12x1-Female, 4-pin, A-coded
Connection 3	M12x1-Male, 4-pin, A-coded
Contact, surface protection	Gold plated
Polarity reversal protected	yes
Protection against device mix-ups	yes
Short-circuit protection	yes

### Electrical data

No-load current $I_o$ max. at $U_e$	100 mA
Operating voltage $U_b$	18...30 VDC
Rated insulation voltage $U_i$	75 V DC
Rated operating voltage $U_e$ DC	24 V
Ready delay $t_v$ max.	300 ms
Ripple max. (% of $U_e$ )	10 %

### Environmental conditions

Ambient temperature	5...55 °C
EN 60068-2-27, Shock	Half-sinus, 30 g <sub>n</sub> , 11 ms, 3x6
EN 60068-2-6, Vibration	10...55 Hz, amplitude 1 mm, 3x30 min
IP rating	IP54

### Functional safety

MTTF (40 °C)	31 a
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### Remarks

For additional information, refer to user's guide.  
Do not press key using a pointed tool.  
Reference object (target): Steel cylinder diameter 8.0 mm.  
For more information about MTTF and B10d see MTTF / B10d Certificate

Indication of the MTTF- / B10d value does not represent a binding composition and/or life expectancy assurance; these are simply experiential values with no warranty implications. These declared values also do not extend the expiration period for defect claims or affect it in any way.

### IO-Link

IO-Link Profil IDs	N/A
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### Interface

Baud rate	COM2 (38.4 kBaud)
Interface	IO-Link 1.1

### Material

Housing material	Aluminium, Anodized
Housing material, surface protection	Anodized
Material sensing surface	Glass
Surface protection	Anodized

### Mechanical data

Mounting part	Screw M4
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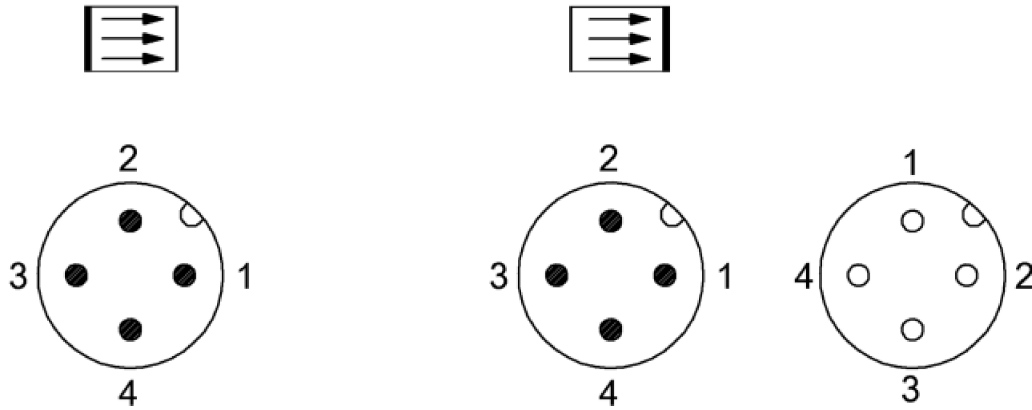
### Optical features

Ambient light max.	5000 Lux
Average power $P_o$ max.	120 $\mu$ W
Beam characteristic	Collimated light strip, width 37 mm
Laser class per IEC 60825-1	1
Light type	Laser red light
Principle of optical operation	Through-beam sensor
Pulse frequency	0.01...1 kHz
Pulse power $P_p$ max.	0.3 mW
Smallest part typ.	Wire $\varnothing$ 0.3 mm at $R_0 \leq 0.25m$ Wire $\varnothing$ 0.5 mm at $R_0 \leq 1m$ Wire $\varnothing$ 1.0 mm at $R_0 \leq 2m$
Special optical feature	CCD technology
Wave length	650 nm

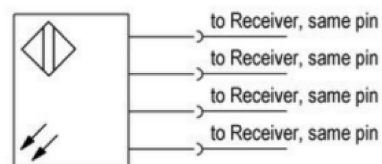
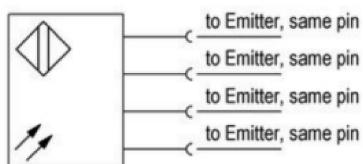
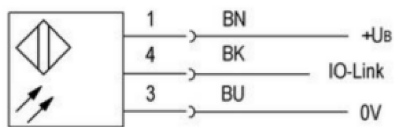
### Range/Distance

Accuracy	$\pm 30 \mu m$ ( $R_0 \leq 0.25m$ ) $60 \mu m$ ( $R_0 \leq 1m$ ) $100 \mu m$ ( $R_0 \leq 2m$ )
Active length AL 1	32 mm
Range	0...2 m
Rated operating distance $S_n$	2 m
Repeat accuracy	15 $\mu m$ ( $R_0 \leq 0.25 m$ ) 20 $\mu m$ ( $R_0 \leq 1 m$ ) 70 $\mu m$ ( $R_0 \leq 2 m$ )
Resolution	$\leq 0.01 mm$

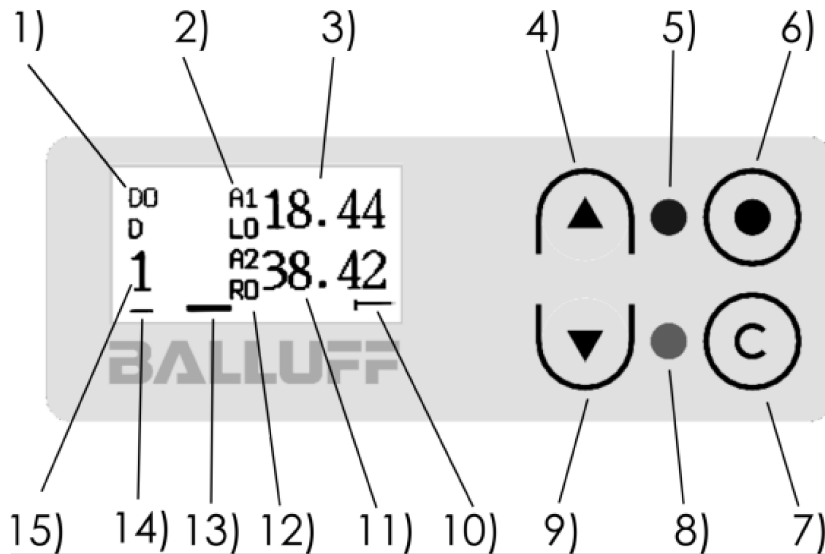
## Connector Drawings



## Wiring Diagrams

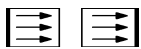


## Help Views

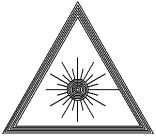


- 1) Object mode digital outputs
- 2) Measuring mode analog out1
- 3) Measured value analog out1
- 4) Scroll / increase value
- 5) LED 2 - Object detected
- 6) Menu, confirm selection
- 7) Discard selection, back
- 8) LED 1 - Operating voltage
- 9) Scroll / Reduce value
- 10) Vis. meas. field - blank.
- 11) Measured value analog out2
- 12) Measuring mode analog out2
- 13) Vis. meas. field - object
- 14) Vis. meas. field - autobl.
- 15) No. of identified object

## Opto Symbols



## Warning Symbols



LASER CLASS 1 per IEC 60825-1