

- 1) Display and control panel
- 2) Optical axis receiver
- 3) Optical axis emitter
- 4) rotatable 270°



IND. CONT. EQ  
 77HA  
 for use in the secondary of  
 a class 2 source of supply



## Basic features

<b>Approval/Conformity</b>	cULus CE EAC WEEE
<b>Basic standard</b>	IEC 60947-5-2
<b>Principle of operation</b>	Photoelectric sensor
<b>Series</b>	26K
<b>Style</b>	Square Connection can be rotated

## Display/Operation

<b>Adjuster</b>	2-turn potentiometer
<b>Display</b>	Output function- LED yellow Error - LED red Switching dist. - dig. disp. Stability - LED green
<b>Setting</b>	Rated switching distance (Sn)

## Electrical connection

<b>Connection</b>	Connector, M12x1-Male, 4-pin
<b>Polarity reversal protected</b>	yes
<b>Short-circuit protection</b>	yes

Photoelectric Sensors  
**BOS 26K-PA-1LHC-S4-C**  
Order Code: BOS008F

**BALLUFF**

**Electrical data**

No-load current $I_0$ max. at $U_e$	50 mA
Operating voltage $U_b$	10...30 VDC
Protection class	II
Rated insulation voltage $U_i$	75 V DC
Rated operating current $I_e$	200 mA
Rated operating voltage $U_e$ DC	24 V
Ripple max. (% of $U_e$ )	10 %
Switching frequency	2500 Hz
Turn-off delay $t_{off}$ max.	0.2 ms
Turn-on delay $t_{on}$ max.	0.2 ms
Utilization category	DC -13
Voltage drop $U_d$ max. at $I_e$	2.4 V

**Environmental conditions**

Ambient temperature	-20...45 °C
EN 60068-2-27, Shock	Half-sinus, 30 $g_n$ , 11 ms, 3x6
EN 60068-2-6, Vibration	10...55 Hz, amplitude 0.5 mm, 3x30 min
IP rating	IP67

**Functional safety**

MTTF (40 °C)	188 a
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**Material**

Housing material	ABS
Material sensing surface	PMMA

**Mechanical data**

Dimension	17 x 50 x 50 mm
Mounting	Screw M4

**Optical features**

Ambient light max.	5000 Lux
Average power $P_o$ max.	1 mW
Beam characteristic	Collimated
Laser class per IEC 60825-1	2
Light spot size	3 x 1 mm at 300 mm
Light type	Laser red light
Principle of optical operation	Diffuse sensor, triangulation
Pulse duration $t$ max.	10.0 $\mu$ s
Pulse frequency	14 kHz
Pulse power $P_p$ max.	4.8 mW
Special optical feature	Background suppression
Switching function, optical	Light-on dark-on
Wave length	670 nm

**Output/Interface**

Switching output	PNP normally open (NO) PNP NC Pins 4-2
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**Range/Distance**

Distance deviation 18 % max. (% of $S_r$ )	5 % on 90 % rem.
Range	50...300 mm
Rated operating distance $S_n$	300 mm Adjustable

**Remarks**

Order accessories separately.

For additional information, refer to user's guide.

The sensor is functional again after the overload has been eliminated.

Reference object (target): gray card, 200 x 200, 90 % remission, axial approach.

Only for applications per NFPA 79 (machines with a supply voltage of maximum 600 V). Use an R/C (CYJV2) cable with suitable properties for attaching the device.

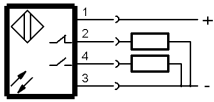
For more information about MTTF and B10d see MTTF / B10d Certificate

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

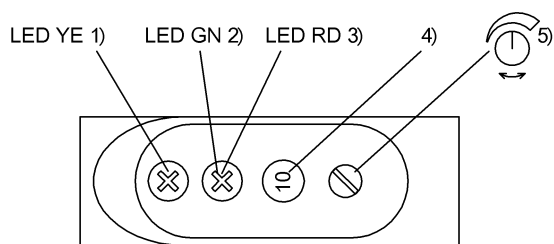
**Connector Drawings**



## Wiring Diagrams



## Help Views

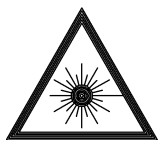


- 1) Output function
- 2) Stability
- 3) Error
- 4) Switching dist. dig. displ.
- 5) Sensitivity

## Opto Symbols



## Warning Symbols



LASER BEAM - DO NOT STARE INTO THE LIGHT BEAM!

LASER CLASS 2 per IEC60825-1: 2003-10