

## Laser triangulation sensor with background suppression

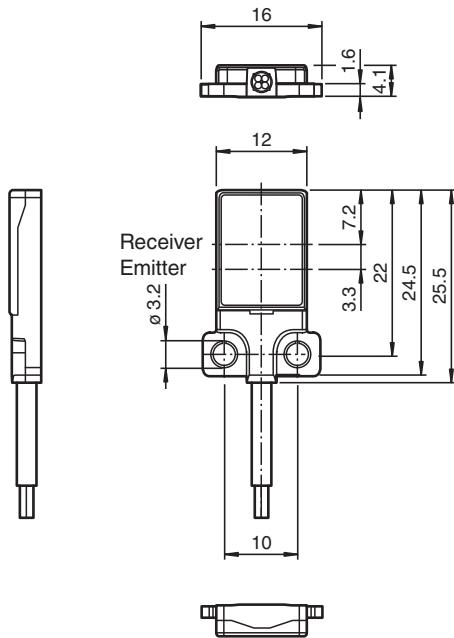
### OBT30-R3F-E0-L

- Very flat design for direct mounting without mounting bracket
- DuraBeam Laser Sensors - durable and employable like an LED
- Small parts detection from 0.05 mm
- Highly visible light spot, even on dark materials
- Extremely small light spot for very high switching point accuracy
- Precision object detection, almost irrespective of the color

Triangulation sensor with background suppression for standard applications, flat design, M3 mounting, 30 mm sensing range, red light, light on, NPN output, fixed cable



## Dimensions



## Technical Data

### General specifications

Detection range	3 ... 30 mm
Reference target	standard white, 100 mm x 100 mm
Light source	LASER LIGHT
Light type	modulated visible red light , 680 nm
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	1
Wave length	680 nm

## Technical Data

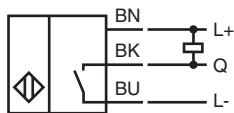
Beam divergence	> 5 mrad	
Pulse length	approx. 3 $\mu$ s	
Repetition rate	approx. 16.6 kHz	
max. pulse energy	8 nJ	
Black-white difference (6 %/90 %)	< 20 % at 30 mm	
Angle deviation	approx. 0.5 °	
Object size	typ. starts from 0.05 mm @ 20 mm	
Diameter of the light spot	1.5 mm +/- 1 mm at a distance of 30 mm	
Opening angle	approx. 1 °	
Optical face	frontal	
Ambient light limit	EN 60947-5-2 : 25000 Lux	
<b>Functional safety related parameters</b>		
MTTF <sub>d</sub>	800 a	
Mission Time (T <sub>M</sub> )	20 a	
Diagnostic Coverage (DC)	0 %	
<b>Indicators/operating means</b>		
Operation indicator	LED green, statically lit Power on , short-circuit : LED green flashing (approx. 4 Hz)	
Function indicator	LED yellow ON: lights when object is detected	
<b>Electrical specifications</b>		
Operating voltage	U <sub>B</sub>	12 ... 24 V
No-load supply current	I <sub>0</sub>	< 10 mA
Protection class		III
<b>Output</b>		
Switching type	NO contact / light-on	
Signal output	1 NPN output, short-circuit protected, reverse polarity protected, open collector	
Switching voltage	max. 30 V DC	
Switching current	max. 50 mA	
Voltage drop	U <sub>d</sub>	≤ 1.5 V DC
Switching frequency	f	approx. 2 kHz
Response time		250 $\mu$ s
<b>Conformity</b>		
Product standard	EN 60947-5-2	
Laser safety	EN 60825-1:2007	
<b>Approvals and certificates</b>		
UL approval	E87056 , cULus Recognized, Class 2 Power Source	
CCC approval	CCC approval / marking not required for products rated ≤36 V	
FDA approval	IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007	
<b>Ambient conditions</b>		
Ambient temperature	-10 ... 60 °C (14 ... 140 °F)	
Storage temperature	-20 ... 70 °C (-4 ... 158 °F)	
<b>Mechanical specifications</b>		
Housing width	16 mm	
Housing height	25.5 mm	
Housing depth	4.1 mm	
Degree of protection	IP67	
Connection	2 m fixed cable	
Material		
Housing	PC (Polycarbonate) and Stainless steel	
Optical face	PMMA	
Cable	PUR	
Mass	approx. 20 g	
Tightening torque, fastening screws	1 Nm	

## Technical Data

Cable length

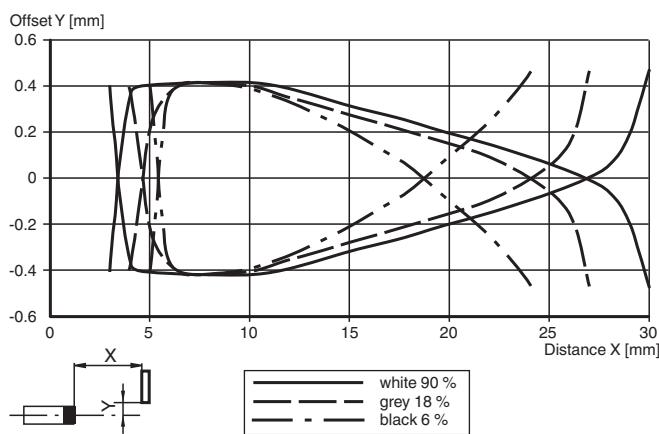
2 m

## Connection



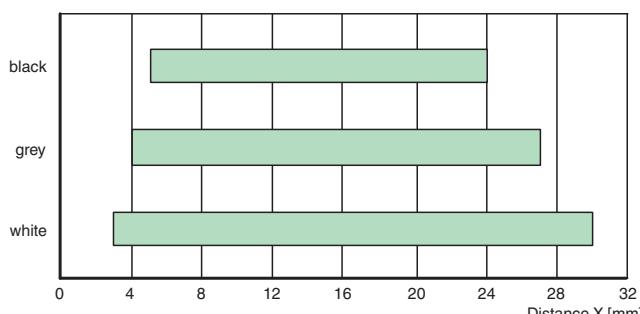
## Characteristic Curve

### Characteristic response curve



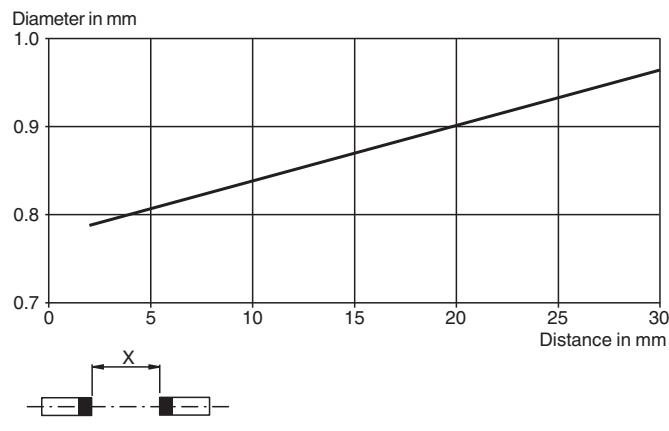
### Detection ranges

Object colour

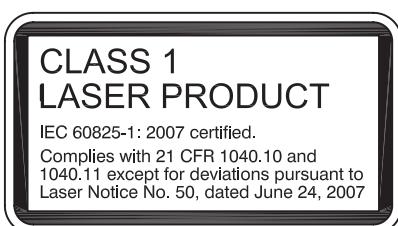


## Characteristic Curve

### Light spot diameter



## Safety Information



## Safety Information

### Laser Class 1 Information

The irradiation can lead to irritation especially in a dark environment. Do not point at people!  
Maintenance and repairs should only be carried out by authorized service personnel!

Attach the device so that the warning is clearly visible and readable.

The warning accompanies the device and should be attached in immediate proximity to the device.

Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.