

# BALLUFF

## **Distance Sensor BOD 63M** ... with light propagation time measurement



Measuring and sensing in one unit – **BOD 63M Distance Sensor** with light propagation time measurement rounds out the Balluff product family of distance sensors for the most demanding applications.

The BOD 63M in a rugged metal housing has a working range of 500...6000 mm and is an ideal supplement to the BOD 26K (45...85 mm) and BOD 66M (200...2000 mm). It features adjustable background suppression and an analog output of 0...10 V or 4...20 mA.

A multi-turn potentiometer is used for calibrating the sensor. The highly focused, easily visible and precise laser red light enables long range with very low gray value shift and hysteresis.

With a variety of output circuits, this innovative sensor technology is used in applications where traditional approaches run

into technological or cost limits. This includes detection of small objects at large distances, in difficult environments such as when sensing is required "from outside" in processes characterized by high temperatures or in robotic cells. Furthermore these sensors are virtually unaffected by reflective or color properties of the target object.

**Features**

- The principle of measuring the propagation time of light allows greater ranges than with sensors using triangulation or energetic diffuse optical sensors
- Small laser spot for detecting small objects over large distances
- Virtually unaffected by the reflective properties of the object within a particular sensing range
- Background suppression (HGA) is adjustable over the entire working range
- Sensing output and switching output

**Applications**

- Precise detection over large distances (e. g., installation constraints or when local temperatures are very high)
- Detecting objects with changing colors, reflective surfaces or at unfavorable angles to the light beam
- Flexible solutions for position sensing, level control sensing and control, distance and height measurement, quality assurance



**Laser safety regulation**

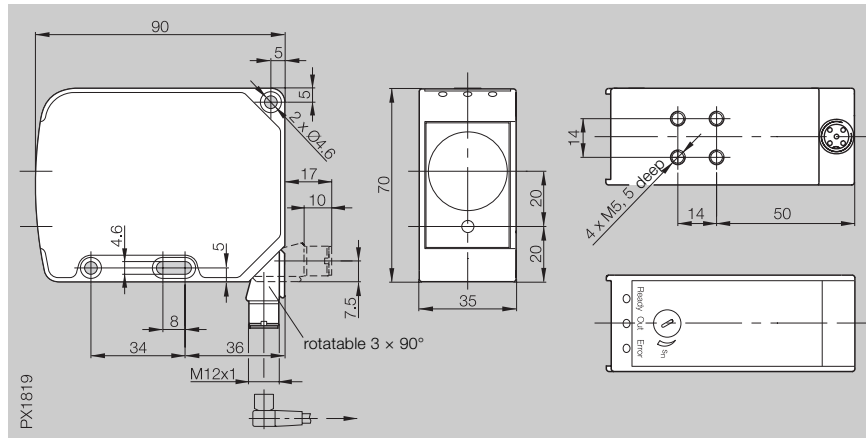
The emitter corresponds to Laser safety class 2 per EN 60825-1:2001-11. Therefore, no additional safety measures are required.



The device must be mounted so that the laser warning label is easily visible.



Series	BOD 63M	BOD 63M
Working range	500...6000 mm	500...6000 mm



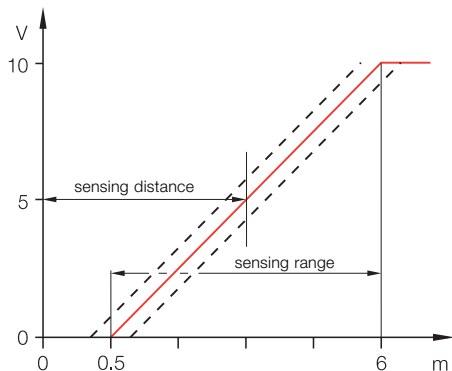
### Diffuse

	BOD 63M-LA01-S115	BOD 63M-LB01-S115
PNP 500...6000 mm HGA		
<b>Electrical data</b>		
Supply voltage $U_B$	15...30 V DC	15...30 V DC
No-load supply current $I_0$ max.	$\leq 100$ mA	$\leq 100$ mA
Analog output	<b>voltage 0...10 V</b>	<b>current 4...20 mA</b>
Switching output	PNP	PNP
Switching type	light-on	light-on
Alarm output	PNP dark-on	PNP dark-on
Output current	switching output 200 mA	200 mA
	alarm output 200 mA	200 mA
Voltage drop $U_d$ at $I_0$	$\leq 2.5$ V	$\leq 2.5$ V
Settings	4-turn potentiometer	4-turn potentiometer
<b>Optical data</b>		
Emitter, light type	laser, red light	laser, red light
Wavelength	650 nm	650 nm
Laser protection class	2	2
Light spot diameter	5 mm at 3 m* 10 mm at 6 m*	5 mm at 3 m* 10 mm at 6 m*
Resolution	$\leq 2$ mm*	$\leq 2$ mm*
Gray value shift	$\leq 1$ %*	$\leq 1$ %*
Repeatability	$\leq 10$ mm*	$\leq 10$ mm*
Temperature drift	$\leq 2$ mm/°C*	$\leq 2$ mm/°C*
Linearity	1.5 %*	1.5 %*
Switching hysteresis	1.5 %*	1.5 %*
<b>Time data</b>		
On/off delay	$\leq 70$ ms	$\leq 70$ ms
Response time	5 ms	5 ms
Frequency of operating cycles $f$ (standard)	$\geq 100$ Hz	$\geq 100$ Hz
<b>Display</b>		
Supply voltage indicator	LED green	LED green
Output function indicator	LED yellow	LED yellow
Stability indicator	LED red	LED red
<b>Mechanical data</b>		
Connection	M12 connector, 8-pin	M12 connector, 8-pin
Housing material	anodized aluminum	anodized aluminum
Lens material	glass	glass
Weight (incl. holder)	260 g	260 g
<b>Ambient data</b>		
Degree of protection per IEC 60529	IP 65	IP 65
Protected against polarity reversal	yes	yes
Short circuit protected	yes	yes
Permissible ambient light	$\leq 10$ kLux	$\leq 10$ kLux
Ambient temperature range $T_a$	-10...+55 °C	-10...+55 °C

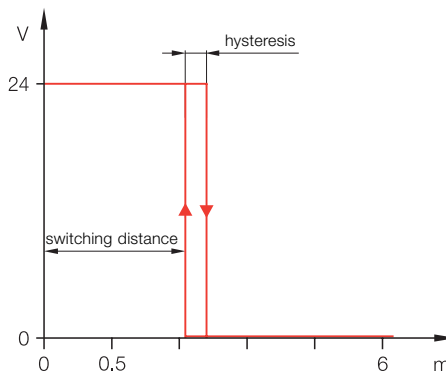


\* preliminary values

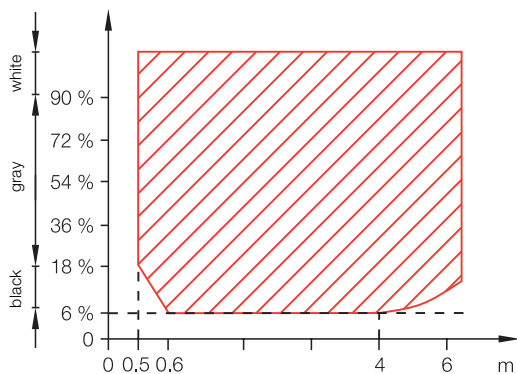
**Analog output**



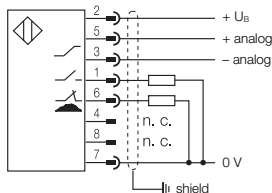
**Switching output**



**Measuring range as a function of object reflection**



**Wiring diagram**



**Connector diagram**



**Recommended accessories**  
please order separately

Connector  
BKS-S139-\_\_-05

Mounting bracket  
BOD 63-HW-1



**Standard models BOD 63M**

other versions on request

Ordering code	Analog output		Switching output		Switching type
	voltage	current	PNP	NPN	light-on
<b>BOD 63M-LA01-S115</b>	x		x		x
BOD 63M-LB01-S115		x	x		x
BOD 63M-LA11-S115	x			x	x
BOD 63M-LB11-S115		x		x	x



For more sensors see main catalog "The Sensor Program" on CD-ROM or online!

[www.balluff.de](http://www.balluff.de)