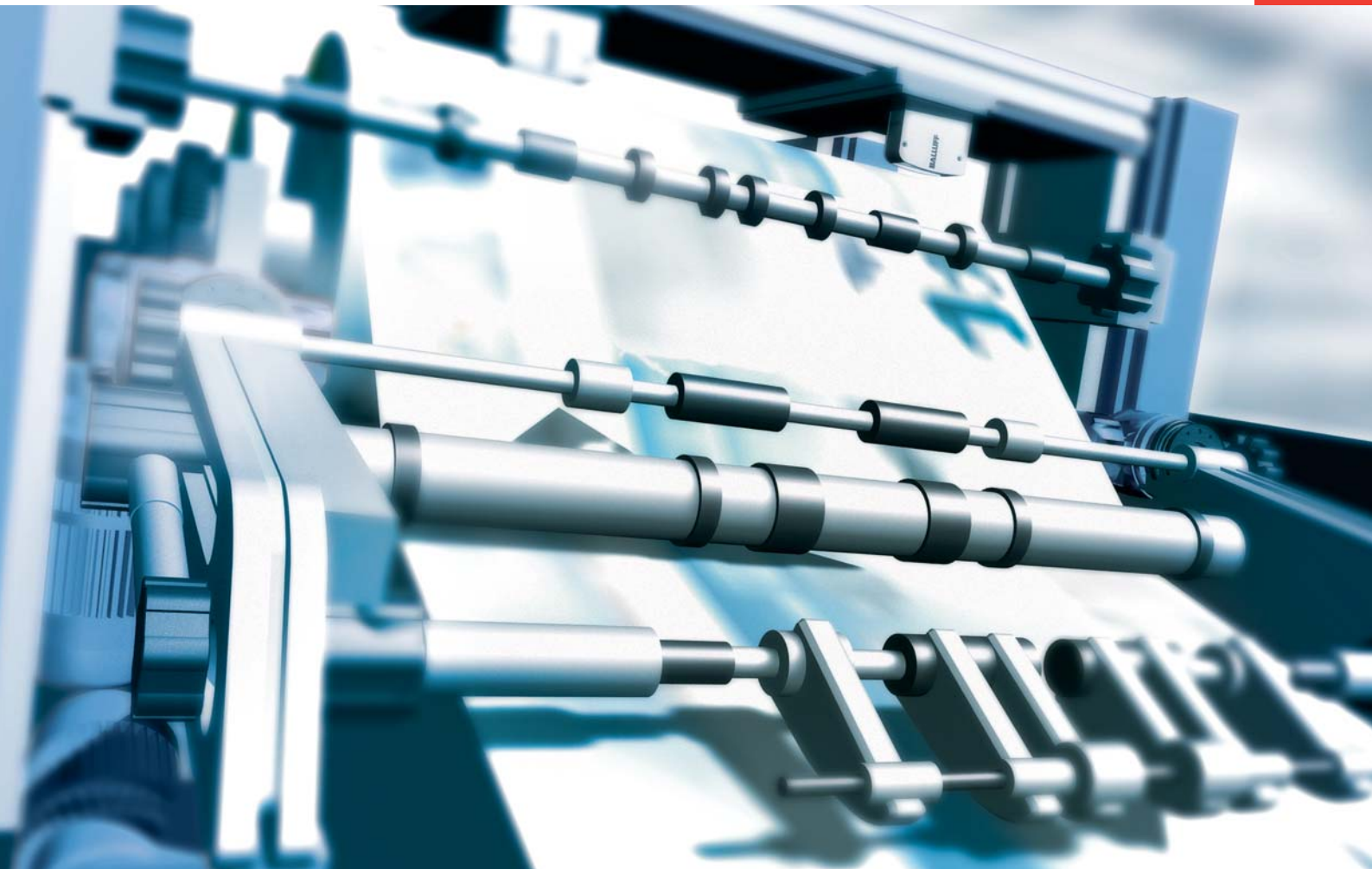


Distance Sensors BOD
... Measure travel – over any distance



Photoelectric Sensors

Distance Sensors BOD



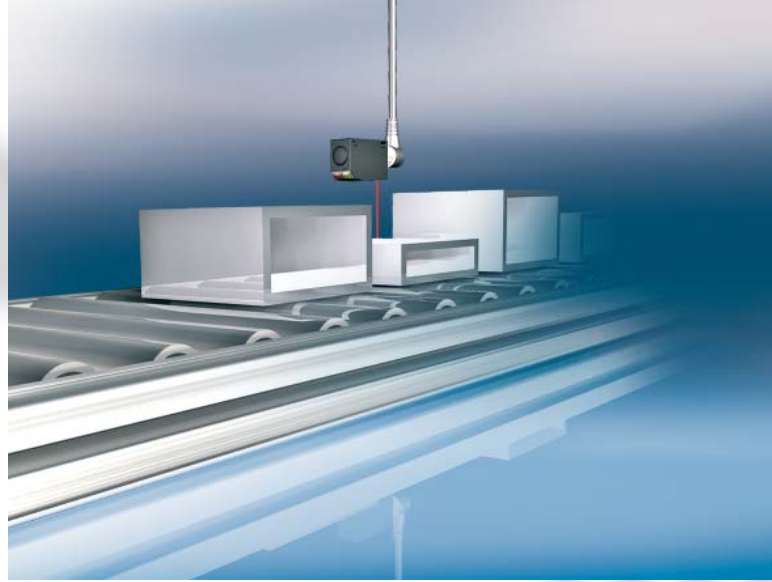
User-friendly, intelligent and versatile.

Distance sensors in the BOD product family are designed for a variety of tasks including positioning, material backup monitoring or expanded background suppression applications.

Photoelectric distance sensors provide an output signal proportional to the object distance, virtually independent of the reflectivity and color of the object.

Applications

- Positioning
- Wear monitoring
- Contour checking
- Quality inspection
- Orientation checking
- Thickness measurement
- Distance measurement
- Height selection



Measuring height of parts

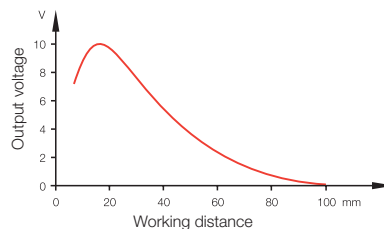
Various parts are inspected and selected.



BOD 6K

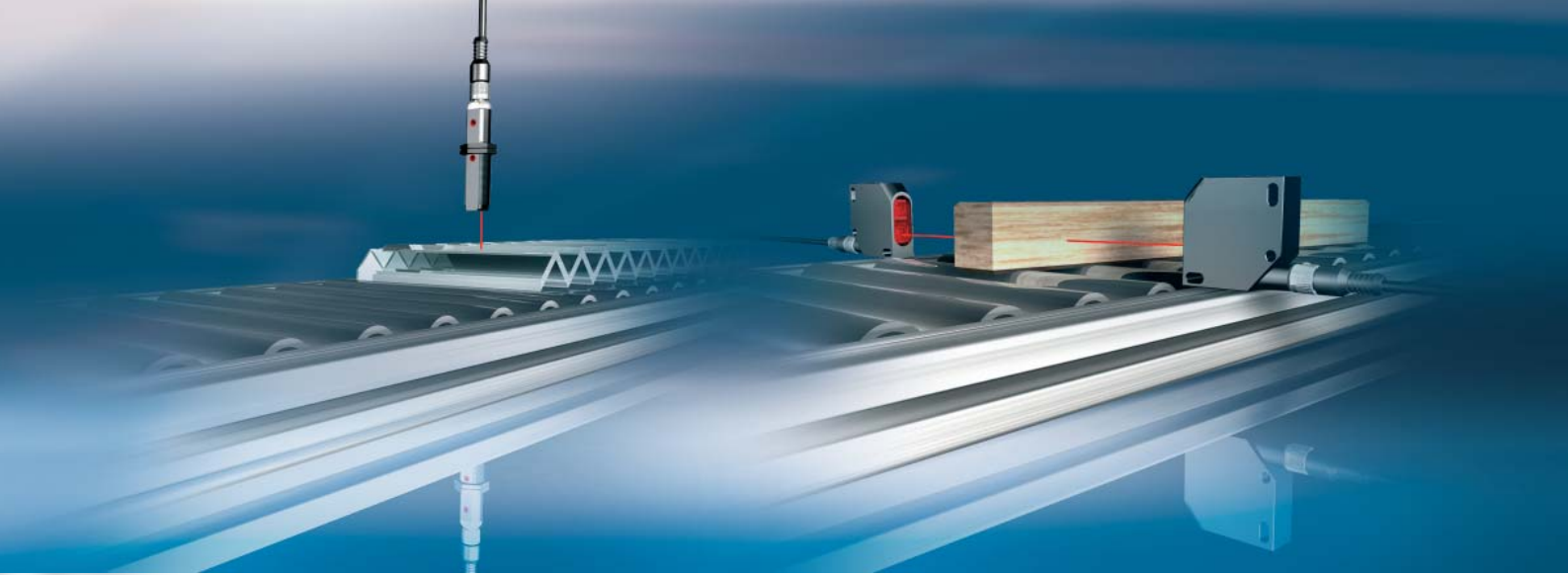
Highly compact dimensions

- One of the smallest block-style distance sensors on the market
- Ideal for use where space is at a premium
- Teach-in – simplified setting of the additional switching output
- Visible red light facilitates alignment



BOD 6K-RA01





Detecting object contours

Distance sensors can be used to detect various surface properties.

Thickness measurement of boards

Direct, simple measurement of object thickness using two sensors. The two sensors communicate serially.

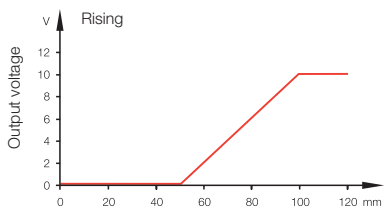
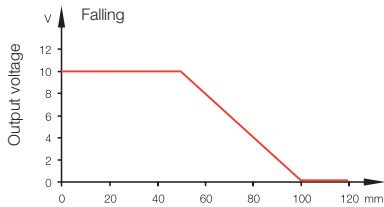


BOD 18KF

Distance sensing in its simplest form

- Fastest startup
- No calibration necessary
- Flexible mounting using through-holes or M18 thread
- Visible red light facilitates alignment

Selectable rising/falling



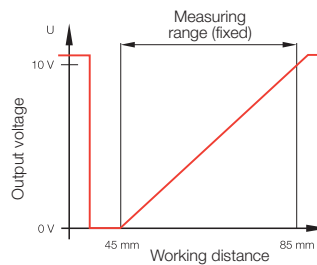
BOD 18KF



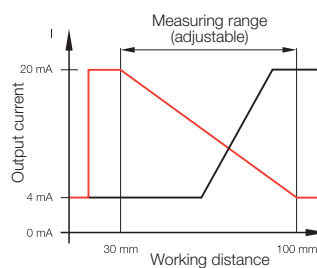
BOD 26K

Highly precise, highly functional

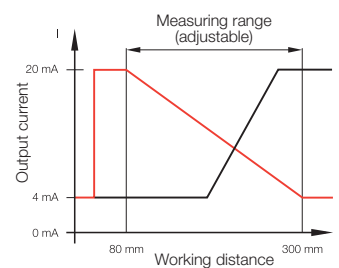
- Store min. and max. values
- Adjust to the output curve
- Decentralizes ancillary functions, with no performance loss in the PLC
- The only sensor to offer thickness measurement in master-slave mode
- Software parameterizing



BOD 26K-LA01..., BOD 26K-LA02...



BOD 26K-LB(R)04...



BOD 26K-LB(R)05...





Positioning seatbacks

In this application the angle of automobile seats is set and optically checked.

Checking roll diameters

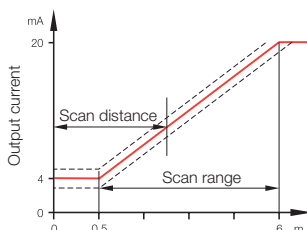
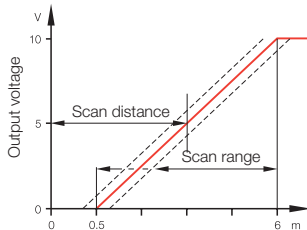
The distance sensor determines the distance to the paper roll, which tells how thick the paper roll is so that the drive speed can be controlled accordingly. In addition, a switchpoint can be set to request a roll change.



BOD 63M

Light time-of-flight measurement for long distances

- High resolution over a range of 6 m
- Constant light spot over the entire measuring range, ideal for measuring small objects or details
- Absolute measurement of surfaces independently
- Ambient light has no effect on the measurement
- Rugged metal housing for extreme conditions
- Potentiometer for fast, easy calibration



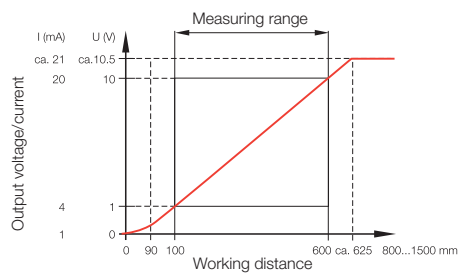
BOD 63M



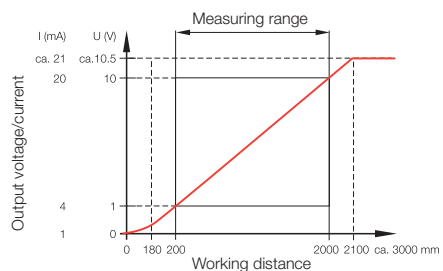
BOD 66M

The specialist in mid-range sensing

- 1 teach-in button for setting the switching output
- Rugged metal housing for extreme ambient conditions
- Selectable current or voltage output
- Laser or red light – whatever your application calls for



BOD 66M-R...



BOD 66M-L...

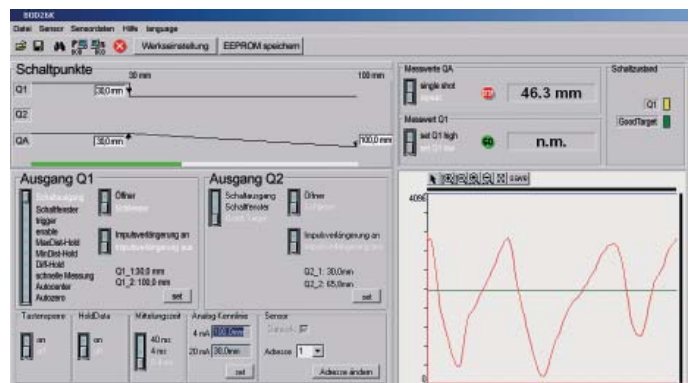
Distance Sensors BOD

... the intelligent product family at a glance

Type	Working range	Resolution	Light type	Measuring principle	Analog output	Output	U _B	Connection
Distance Sensor			Red light Laser light	Triangulation PSD Triangulation CCD Light time-of-flight	0...10 V 1...10 V 4...20 mA	Interface RS485 PNP-Transistor Alarm output	10...30 V DC 15...30 V DC 18...28 V DC 18...30 V DC	M8 connector, 4-pin M12 connector Cable
BOD 6K-RA01-S75-C	20...80 mm	-	■	■	■	■	■	■
BOD 6K-RA01-C-02	20...80 mm	-	■	■	■	■	■	■
BOD 18KF-RA01-S4-C	50...100 mm	1 mm	■	■	■	■	■	■
BOD 18KF-RA01-C-02	50...100 mm	1 mm	■	■	■	■	■	■
BOD 26K-LA01-S4-C	45...85 mm	80 µm	■	■	■	■	■	■
BOD 26K-LA01-C-06	45...85 mm	80 µm	■	■	■	■	■	■
BOD 26K-LA02-S4-C	45...85 mm	20 µm	■	■	■	■	■	■
BOD 26K-LA02-C-06	45...85 mm	20 µm	■	■	■	■	■	■
BOD 26K-LB04-S115-C	30...100 mm	70 µm	■	■	■	■	■	■
BOD 26K-LBR04-S115-C	30...100 mm	70 µm	■	■	■	■	■	■
BOD 26K-LB05-S115-C	80...300 mm	220 µm	■	■	■	■	■	■
BOD 26K-LBR05-S115-C	80...300 mm	220 µm	■	■	■	■	■	■
BOD 63M-LA01-S115	500...6000 mm	2 mm	■	■	■	■	■	■
BOD 63M-LB01-S115	500...6000 mm	2 mm	■	■	■	■	■	■
BOD 66M-RA01-S92-C	100...600 mm	0.5 mm	■	■	■	■	■	■
BOD 66M-RB01-S92-C	100...600 mm	0.5 mm	■	■	■	■	■	■
BOD 66M-LA04-S92-C	200...2000 mm	5 mm	■	■	■	■	■	■
BOD 66M-LB04-S92-C	200...2000 mm	5 mm	■	■	■	■	■	■

Parameterizing and display software

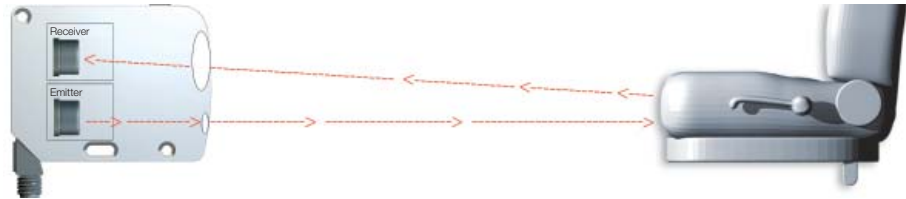
The BOD 26K-LBR... can also be conveniently parameterized in software. Also helpful in setup is the accurate display of the actual object distance.



Measuring principles of distance sensors

... two different types of distance measurement

Light time-of-flight



In light time-of-flight measurement short light pulses are emitted by the laser diode. The target bounces these light pulses back to the receiver, where they are processed to determine the object distance.

In other words, when the light pulse is sent an "electronic clock" is started which is then stopped when the light pulse arrives back at the receiver. This principle is extremely insensitive to ambient light.

Triangulation



In triangulation the angle of the arriving light is evaluated. The emitter sends a light beam out to the object, which reflects it back where it passes through a lens and strikes a photoelement. Processing electronics determine the focal point of the intensity and thereby the distance.

PSD receiving element



The PSD element is essentially a photodiode used to evaluate the current ratio. The PSD is characterized by **high dynamics**.

CCD receiver



The CCD consists essentially of many photodiodes whose differing intensity is evaluated.

The CCD is characterized by **high accuracy** and enables **long ranges** to be achieved.



For more sensors see main catalog „The Sensor Line“, on CD-ROM, DVD-ROM or online!



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