Selection Guide

Tubular Photoelectric Sensors




Housing Size	5 mm Diameter	6 mm Diameter	8 mm Diameter	12 mm Diameter
Series	BMOA	BMOA	08M	12M
Housing Type	Smooth	Threaded	Threaded	Threaded
Housing Material	Metal	Metal	Metal	Metal
Straight or Right Angle	Straight	Straight	Straight	Straight
Thru-beam			1.1 m	5 m
Thru-beam, Laser				
Retroreflective				
Polarized Retroreflective			550 mm	1.5 m
Polarized Retroreflective, Laser				
Diffuse	50 mm	50 mm	55 mm	100 mm, 200 mm, 400 mm
Diffuse, Laser				
Background Suppression				60 mm
Foreground & Background				
Fixed Focus				23 mm
Distance Sensor				
Luminescence				
Contrast Sensor				
Transparent				
Fiber Optic				
Supply Voltage	DC	DC	DC	DC
Page Number	2.14	2.14	2.15	2.17

New Tubular Photoelectric Sensors...

BOS 12M - new with background suppression!

- 60 mm sensing distance
- 12 mm diameter
- Simple push-button teach-in
- Visible red emission
- M12 connector




18 mm Diameter	18 mm Diameter	18 mm Diameter	30 mm Diameter
18K	**18KF/18KW**	**18M/18E**	**30M**
Threaded	Combination Threaded	Threaded	Threaded
Plastic	Plastic	Metal	Metal
Straight or Right Angle	Straight or Right Angle	Straight or Right Angle	Straight
8 m, 10 m, 12 m	10 m, 15 m	16 m	
Class I Laser – 60 m	Class I Laser – 50 m, 60 m	Class I Laser – 50 m, 60 m Class II Laser – 50 m	
2 m, 3 m	5 m	2 m, 4 m	
1.5 m, 2 m, 3 m	3 m, 4.5 m	2 m	
Class I Laser – 12 m	Class I Laser – 9 m, 16 m	Class I Laser – 9 m, 16 m	
250 mm, 300 mm 350 mm	80 mm, 100 mm, 350 mm, 400 mm, 700 mm	100 mm, 200 mm, 400 mm 1000 mm	2 m
Class I Laser – 350 mm	Class I Laser – 250 mm, 350 mm	Class I Laser – 250 mm, 350 mm	
	50 mm to 100 mm	10 mm to 120 mm 40 mm to 120 mm	
	40 mm to 100 mm		
	80 mm, 100 mm		
	80 mm to 100 mm		
	8 mm to 20 mm		
	10 mm		
	1.7 m		
	Yes	Yes	
DC or AC	DC	DC or AC	DC
2.19	**2.26**	**2.36**	**2.52**

18KF/18KW/18M 90° Class I Lasers

- Standard modes include: 50 m Thru-beam, 9 m Polarized Retroreflective, 250 mm Diffuse
- Highly Visible Safe Class I Laser Emission
- Potentiometer adjustment
- M12 connector or cable out

18M Advanced Series

- Simple one button teach-in process learns setting on the fly or static mode
- Teachable normally open or normally closed output
- Stability output advises when the sensor is getting contaminated
- Rugged 18mm IP 67 metal housing

Selection Guide

Block Photoelectric Sensors





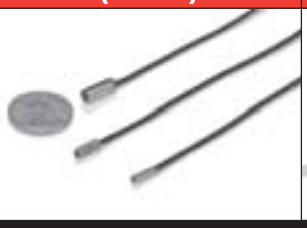
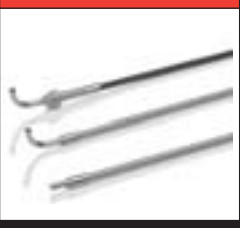

Housing Size	8x8x50 mm	**5K** 32x20x11 mm **6K** 32x20x12 mm	23x44x13 mm 42x29x13 mm	31x55x13 mm 31x67x13 mm	50x43x15 mm	25K 50x50x18 mm 26K 50x50x17 mm
Series	**Q08M/BMOA**	**5K & 6K**	**15K**	**16K**	**21M**	**25K &26K**
Housing Material	Metal	Plastic	Plastic	Plastic	Metal	Plastic
Straight or Right Angle	Right Angle	Right Angle	Straight or Right Angle	Straight	Right Angle	Right Angle
Thru-beam	1.1 m	**5K** 10 m **6K** 6 m	5 m	10 m 30 m	20 m	**25K** 20 M
Laser					Class I-60 m	
Retroreflective				2.5 m 5 m		**25K** 2 m
Polarized Retroreflective	550 mm	**5K** 4 m **6K** 2.5 m	2 m	1 m, 2 m	4 m 8 m	**25K** 5 m **26K** 5.5 m
Laser		**6K** Class II-1 m			Class I-20 m	**26K** Class II-12 m
Diffuse	55 mm	**5K** 50 mm to 200 mm, 900 mm **6K** 300 mm	100 mm, 500 mm	190 mm, 380 mm	1 m 2 m	**25K** 2 m
Laser					Class I-600 mm	
Wide Angle Diffuse				90 mm 180 mm		
Background Suppression		**6K** 30 mm to 100 mm			20 mm to 200 mm	**25K** 50 mm to 250 mm **26K** 30 mm to 300 mm 150 mm to 600 mm
Laser		**6K** Class II- 20 mm to 60 mm 30 mm to 110 mm			Class I- 50 mm to 100 mm	**26K** Class II- 30 mm to 150 mm 50 mm to 300 mm
Foreground & Background Suppression					70 mm to 200 mm	
Fixed Focus	10 mm	**6K** 20 mm to 80 mm	12 mm	16 mm 43 mm		
Distance Sensor						
Laser						**26K** Class II-45 mm to 85 mm, 30 mm to 100 mm, 80 mm to 300 mm
Luminescence					40 mm	
Contrast Sensor					19 mm	
Laser		**6K** Class II- 40 mm to 150 mm				
Transparent Detection		**6K** 500 mm			2 m	**25K** 1 m
Fiber Optic			Yes	Yes		
	DC	DC	DC	DC or AC/DC	DC	DC or AC/DC
Page Number	**2.54, 2.55**	**2.56, 2.58**	**2.63**	**2.68**	**2.80**	**2.86, 2.88**

				
65x55x20 mm	**55x86x26 mm**	**70x90x35 mm**	**85x72.5x32 mm**	**90x73x30 mm**
36K	**45K**	**63M**	**65K**	**66M**
Plastic	Plastic	Metal	Plastic	Metal
Right Angle	Straight	Straight	Right Angle	Right Angle
50 m	50 m		70 m	
7 m	3 m		8 m	
2 m	2 m		2 m	
		Class II 500 mm to 6 m		
100 mm to 500 mm			200 mm to 1.1 mm	100 mm to 600 mm
				Class II- 200 mm to 2000 mm
				100 mm to 600 mm
		Class II 500 mm to 6 m		Class II 200 mm to 2000m
DC	DC or AC/DC	DC	DC or AC/DC	DC
2.96	**2.98**	**2.100**	**2.102**	**2.104**

Specialty Photoelectric Sensors

	Laser	Laser	Distance Measurement (Analog)	Slot/Angle Sensors	Slot/Angle Sensors
					
Housing Size	18 mm Diameter	30x20x12 mm 50x43x15 mm 50x50x17 mm 70x90x35 mm 90x73x30 mm	18 mm Tubular 30x20x12 mm 32x20x12 mm 50x50x17 mm 50x50x25 mm 70x90x35 mm 90x73x30 mm	5, 10, 20, 30, 50, 80, 120, 180, 220 mm Gaps	2 mm Gap
Series	**18K, 18M, 18MR, 18KF, 18KW**	**6K, 21M, 26K, 63M, 66M**	**BOD 18KF, 6K, 26K, 27K, 63M, 66M**	**BGL**	**BGL 21**
Housing Type	Threaded Tubular, Combination Threaded Tubular	Block	Tubular or Block	Slot	Advanced Slot
Housing Material	Plastic or Metal	Plastic or Metal	Plastic	Metal	Metal
Straight or Right Angle	Straight or Right Angle	Straight or Right Angle	Straight or Right Angle	Slot	Slot
Sensing Modes	**Thru-Beam** Class I Laser- 50 m, 60 m Class II Laser- 50 m	**Thru-Beam** Class I Laser-60 m	**Retroreflective (Line Measurement Sensor)** 0 to 150 mm	**Thru-Beam** Visible Red Emission- 5, 10, 20, 30, 50, 80, 120, 180, 220 mm Class II Laser- 30, 50, 80, 120 mm gaps	**Thru-Beam** Visible Red/Green Emission 2 mm Gap
	Polarized Retroreflective Class I Laser- 9 m, 12 m, 16 m	**Polarized Retroreflective** Class I Laser- 20 m, Class II Laser- 1 m, 12 m	**Background Suppression** Visible Red Emission 20 to 80 mm, Class II Laser- 30 to 100, 80 to 300, 200 to 2000 mm, 500 mm to 6 m		
	Diffuse Class I Laser- 250 mm, 350 mm	**Diffuse** Class I Laser- 600 mm	**Distance Sensor (Analog)** 20 to 80, 50 to 100, 100 to 600 mm Class II Laser- 45 to 85, 30 to 100, 80 to 300, 200 to 2000 mm, 500 mm to 6 m		
		Background Suppression Class I Laser- 50 to 100 mm, Class II Laser- 20 to 60, 30 to 100, 30 to 110, 30 to 150, 50 to 300, 80 to 300, 200 to 2000 mm, 500 mm to 6 m			
		Distance (Analog) Class II Laser- 45 to 85, 30 to 100, 80 to 300, 200 to 2000 mm, 500 mm to 6 m			
		Contrast Class II Laser- 40 to 150 mm			
Supply Voltage	DC	DC	DC, 0-10 V or 4-20 mA	DC	DC
Page Number	2.106-2.114	2.115-2.125	2.130-2.140	2.142	2.146

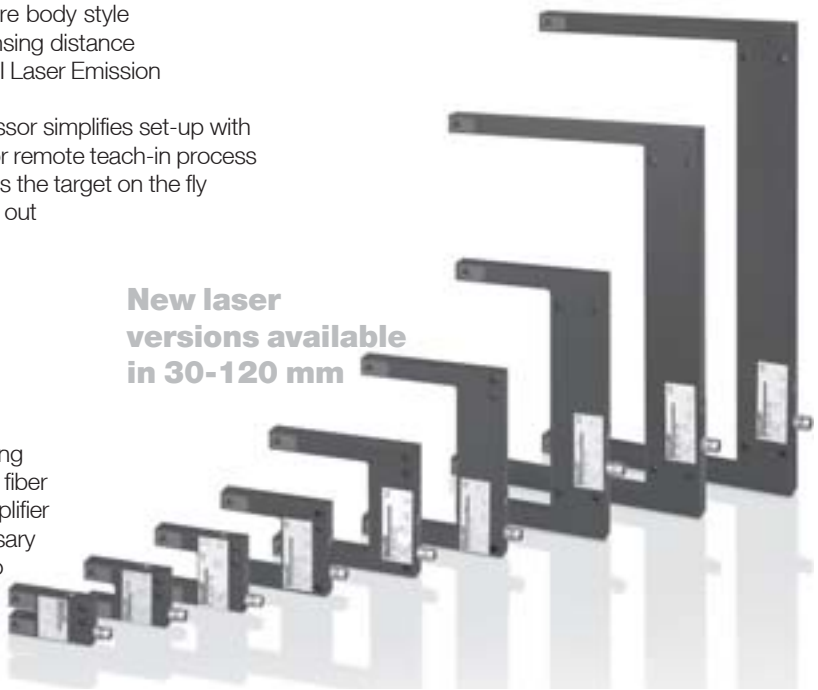
Selection Guide

Slot/Angle Sensors	Fiber Optic (Electric)	Fiber Optic (Electric)	Fiber Optic	Fiber Optic
				
22 mm/22 mm 43 mm/43 mm 42 mm/62 mm	2, 4, 5 mm Smooth Tubular, 3, 5, 6 mm Threaded Tubular 12x6x6 mm	36x52x15 mm		18 mm, 50x65x10 mm 28x69x13 mm 30.7x54.6x13 mm 30.7x67.3x13 mm 30x60x13 mm 30x60x9 mm 41x68.5x12 mm
BWL	**BMOA Electric Fiber Sensing Heads**	**BMOA Electric Fiber Amplifiers**	**BFO Plastic, Glass and Specialty Fiber Optic Cables**	**BOS 18KF, S7, 15K, 16K, 20K, 72K, 73K, 74K**
Angle	Tubular and Block	Block	Tubular and Light Screen	Block
Metal	Metal	Plastic	Plastic/Metal	Plastic
Angle	Tubular Staright, Block Right Angle	Amplifier	Straight or Right Angle	Straight
Thru-Beam Infrared Emission 22 mm/22 mm, 43 mm/ 43 mm, 42 mm/62 mm	**Thru-Beam** 80 mm, 200 mm, 250 mm, 800 mm		**Thru-Beam** 30 mm to 4500 mm depending on Fiber Optic Cable	
	Diffuse 3 mm, 12 mm, 15 mm, 63 mm		**Diffuse** 5 mm to 150 mm depending on Fiber Optic Cable	
DC		DC, Analog		DC or AC/DC
2.147	**2.150**	**2.152**	**2.154**	**2.167-2.178**

BKT 6K Class II Laser Contrast Sensor

– 32x20x12 mm miniature body style
– 40 mm to 150 mm sensing distance
– Highly Accurate Class II Laser Emission
– 0.7 mm spot diameter
– Advanced microprocessor simplifies set-up with a simple push-button or remote teach-in process that automatically learns the target on the fly
– M8 connector or cable out

New laser versions available in 30-120 mm



BGL Advanced Slot Sensors

– Rugged metal housing
– Replaces thru-beam fiber optic cables and amplifier
– No alignment necessary
– Simple mounting, no hardware required

Selection Guide

Specialty Photoelectric Sensors

	Full Color	Full Color	Contrast (Color Mark)	Contrast (Color Mark)	Contrast (Color Mark)
					
Housing Size	50x50x17 mm 76.9x58x31 mm	50x50x25 mm 2 mm Gap	18 mm Diameter	32x20x12 mm 50x43x15 mm 50x50x15 mm 83x58x31 mm	76.9x58x31 mm 2 mm Gap
Series	**BFS 26K**	**BFS 27K**	**BKT 18KF**	**BKT 6K** **BKT 21M** **BKT M**	**BGL 21**
Housing Type	Block	Block	Combination Threaded Tubular	Block	Advanced Slot
Housing Material	Plastic	Plastic	Plastic	Plastic	Metal
Straight or Right Angle	Right Angle	Right Angle	Straight	Straight or Right Angle	Slot
Sensing Modes	**Retroreflective Full Color** 50 mm to 200 mm	**Diffuse Full Color** 5 mm to 45 mm	**Diffuse Contrast** Visible White LED 10 mm	**Diffuse Contrast** Visible White LED Emission 19 mm Visible Red/Green, Blue/Red, White LED Emission 9, 18, 30, 60 mm Class II Laser- 40 to 150 mm	**Thru-Beam** Visible Red/Green Emission 2 mm Gap
	Diffuse Full Color 12 mm to 32 mm, 15 mm to 30 mm, 18 mm to 22 mm			**Fiber Optic Contrast** 3 mm	
Supply Voltage	DC	DC	DC	DC	DC
Page Number	2.180	2.181	2.184	2.185-2.189	2.190

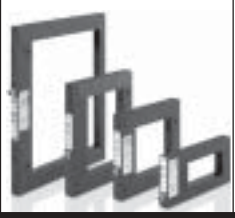
New Specialty Photoelectric Sensors

63M Analog Distance Sensor

- 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
- Discrete sensing and alarm outputs

27K Advanced Full Color Sensor

- 3 channel color sensor with C (Chromaticity) or C+I (Chromaticity and Intensity) functions
- RGB value via RS485 offers millions of color combinations
- Wide spectrum white light LED emission improves color detection
- 3 independent NPN or PNP outputs
- RS485 interface used for:
  - remote set-up
  - teaching color
  - changing tolerance and timer settings
  - chromacity or chromacity and intensity settings
  - RGB output information

Luminescence	Luminescence	Transparent Detection	Transparent Detection	Optical Windows	Light Grids
					
18 mm Diameter	50x43x15 mm 83x58x31 mm	18 mm Diameter	32x20x12 mm 50x43x15 mm	40x80 mm, 80x80 mm, 120x80 mm Dynamic Output Only Windows, 40x40 mm to 400x400 mm Dynamic & Static Output Windows	100 mm, 150 mm, 300 mm Light Grids
BLT 18KF	**BLT 21M** **BLT M**	**BOS 18KF**	**BOS 6K** **BOS 21M**	**BOWA Dynamic Output or Dynamic & Static Output**	**BLG Light Grids**
Combination Threaded Tubular	Block	Combination Threaded Tubular	Block	Window	Light Grids
Plastic Straight	Metal Straight or Right Angle	Plastic Straight or Right Angle	Plastic or Metal Right Angle	Metal Window	Metal Light Grids
Diffuse Luminescence 8 mm to 20 mm	**Diffuse Luminescence** 0 to 40 mm, 9 mm, 18 mm, 30 mm, 60 mm	**Retroreflective Transparent** 1.7 m	**Retroreflective Transparent** 0.5 m, 2 m	**Thru-Beam Dynamic Output Only** 40x80 mm, 80x80 mm, 120x80 mm, **Dynamic & Static Output** 40x40 to 400x400 mm	**Thru-Beam Light Grid** 150 mm to 850 mm, 800 mm to 2.1 m
	Fiber Optic Luminescence 15 mm				
DC	DC	DC	DC	DC	DC
2.192	2.193-2.194	2.198	2.200-2.201	2.204-2.206	2.210

BOWA

Optical Windows

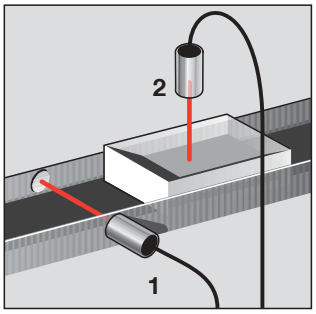
– Three fixed sizes to save you time and money
– Custom sizes available to solve any application
– Detect targets as small as 0.76 mm
– Dynamic outputs detect only moving targets
– Static outputs can detect moving or stationary targets
– Rugged metal housing withstands abuse
– M8 connection for error-free wiring

BLG

Dimensional Light Grids

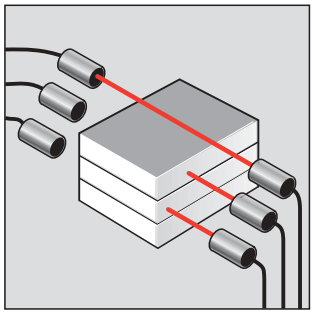
— Sensing distance
  - 150 mm to 850 mm
  - 800 mm to 2.1 m
— Sensing height
  - 100 mm
  - 150 mm
  - 300 mm
— Output
  - 0 to 10 Vdc analog output
  - PNP discrete output
— No set-up required

Sensing size and contents of containers



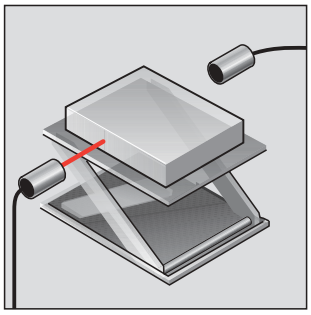
1: BOS 18KF — Retroreflective
2: BOS 18KF — Diffuse with Background Suppression

Sensing stack height



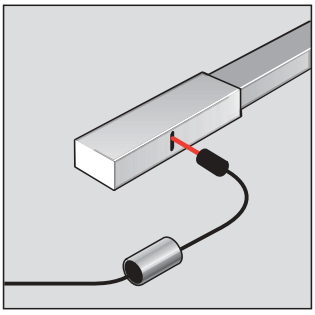
BOS 18KF Laser — Emitter
BOS 18KF Laser — Receiver

Guiding a moveable stage



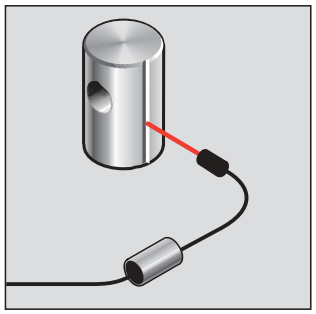
BLE 18M-..-1P-.. — Receiver
BLS 18M-XX-1P-.. — Emitter
BOS 18-BL-2

Sensing a read mark



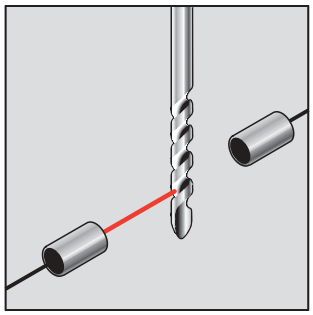
MiniPro senor — Plastic fibers
BOS S7 Amp — Fiber optic cable

Detecting a groove



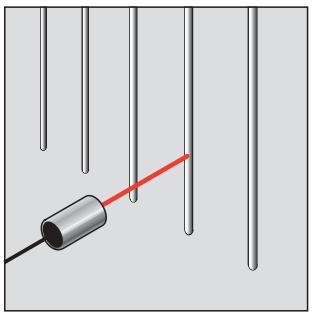
BOS S7 Amp — Sensor with adjustable sensing distance
BFO 74A — Fiber optic cable

Drill break monitor



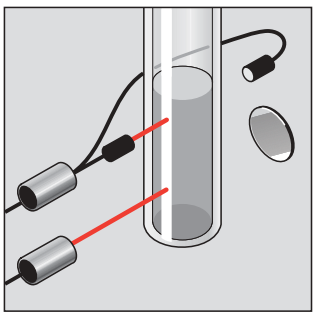
BLS 18M Laser — Emitter
BLE 18M — Receiver
or
BLS 18KF Laser — Emitter
BLE 18KF Laser — Receiver

Small parts detection



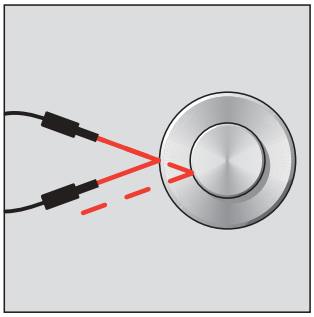
Mini Optos — Diffuse with adjustable sensing distance

Level detection



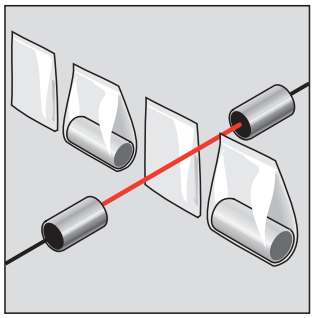
BOS S7 Amp — Fiber optic amp
BFO 74A — Fiber optics
BOS 18KF — Retroreflective

Differentiating various diameters



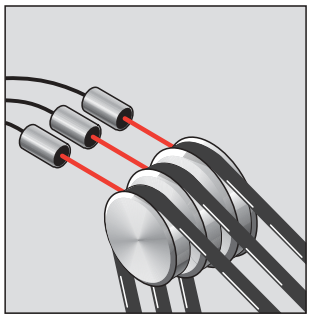
BOS S7 Amp — Fiber optic amp
BFO 22G — Fiber optics

Checking contents of a package



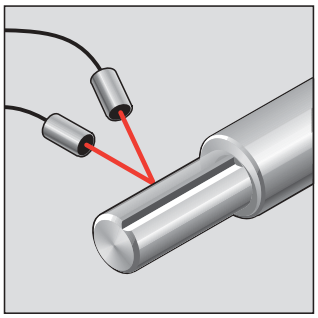
BLE 18M... — Receiver
BLS 18M.. — Emitter
BOS 18-BL-1

Checking pulley belts



BOS 18KF — Diffuse

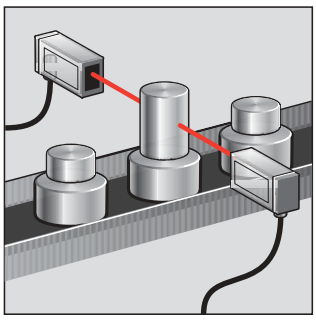
Parts positioning



BOS S7 — Fiber optic amp
BFO 48G optics — Glass fiber

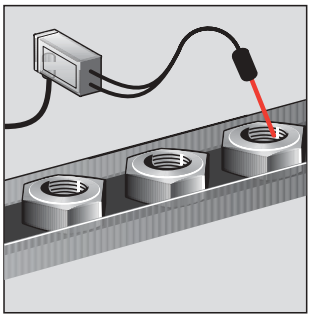
Applications

Part sorting



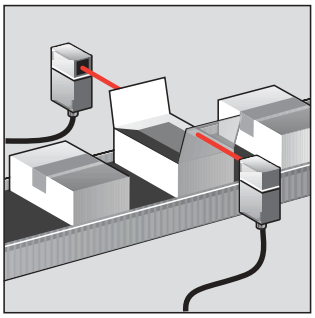
BLS/BLE 5K, 21M
Thru-beam sensor

Thread checking



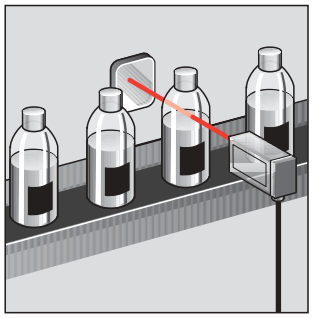
BOS S7/BOS 20K
With fiber optic

Packaging inspection



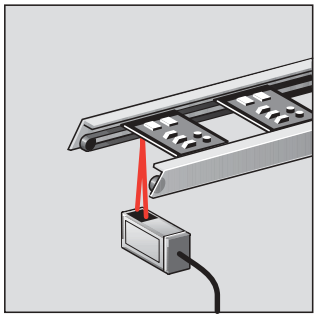
BOS 5K, 21M
Thru-beam sensor

Level monitoring



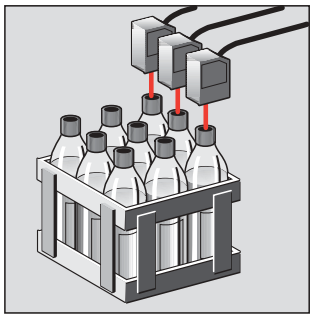
BOS 5K, 21M
Retroreflective sensor

Inspecting PCB's



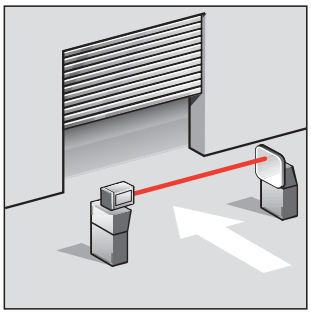
MiniPro/BOS 5K, 6K
Diffuse with focused beam

Checking seals



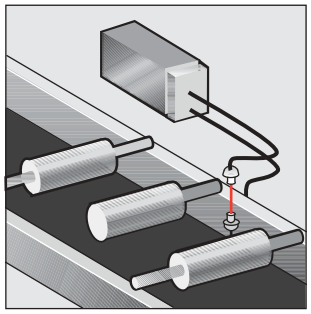
BOS 26K/6K
Background suppression

Gate control



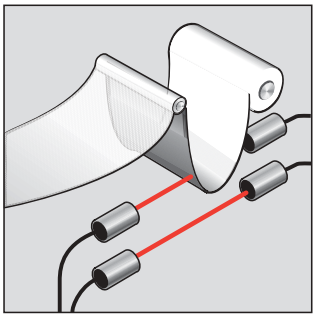
BOS 21M
Retroreflective sensor

Lead presence detection



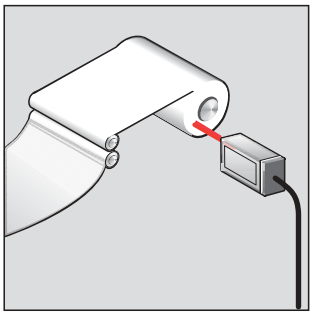
BOS S7 Fiber optic amp
Thru-beam with fiber optics

Entry control



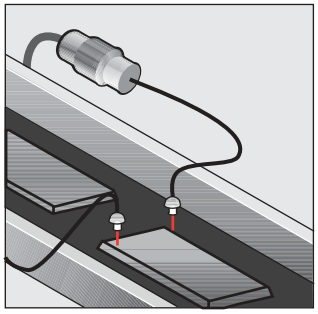
BLE/BLS 18KF
Thru-beam

Paper roll size monitoring



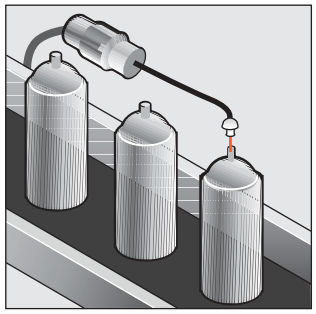
BOS 5K, 21M
Diffuse

Chocolate bar position



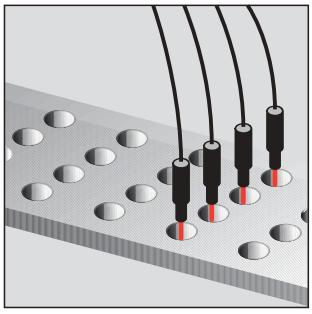
BOS S7 Fiber optic amp
Fiber optics

Missing nozzle detection



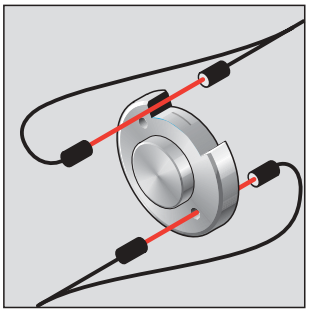
BOS S7 fiber optic amp
Fiber optics

Level control of granules in small packages



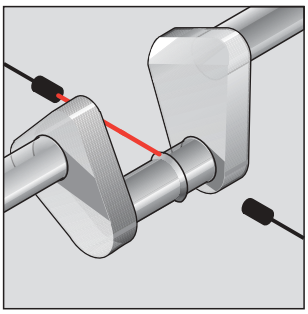
BOS S7
BFO 74A Plastic fiber optics

Detect inspection of workpieces



BOS S7
BFO 74A Plastic fiber optics

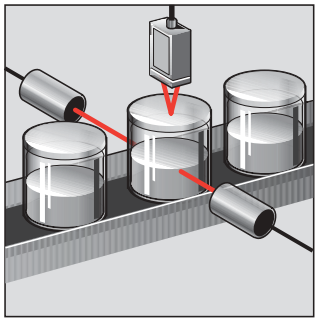
Detecting a bead on a cam shaft



BOS S7 Fiber optic amp
BFO 74A Fiber optics cable

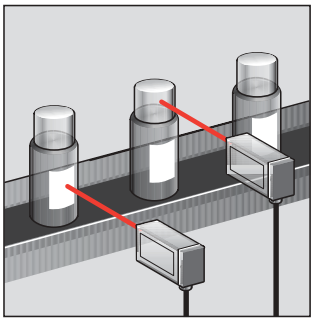
Applications

Cap checking containers



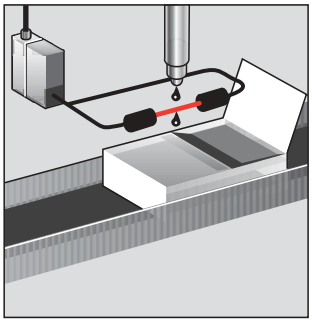
BOS 6K
Background Suppression

Inspecting labels and caps



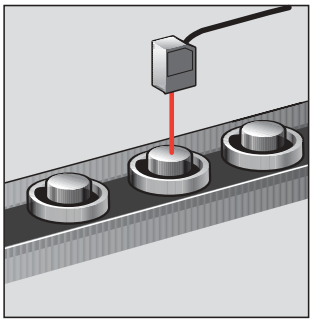
BOS 21M
Diffuse

Adhesive dispensing



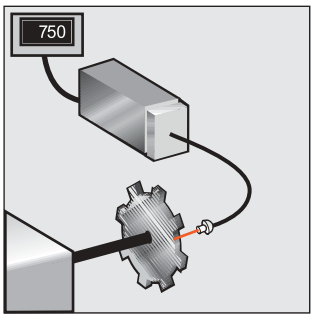
BOS S7
With fiber optic cable

Checking correct quantity



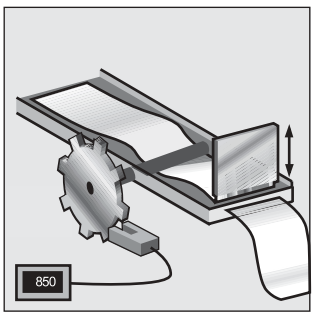
BOS 26K, 6K
Background suppression

Speed detection



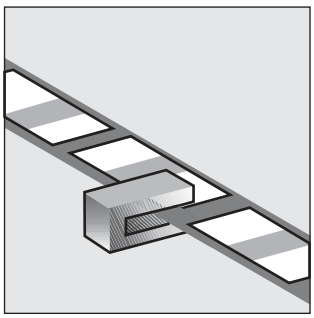
MiniPro/BOS S7
High-speed fiber optics

Cutting synchronization



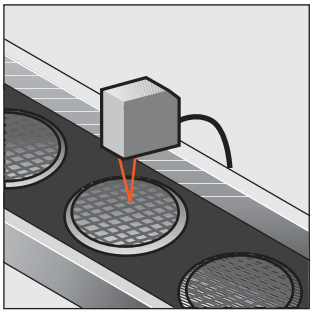
BOS BGL
Slot sensors

Label presence detection



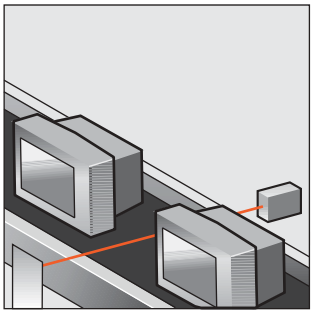
BGL 21
Slot sensors

Biscuit counting



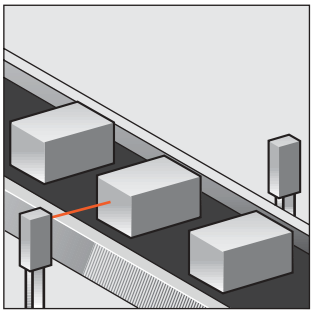
BOS 26K, 6K
Background suppression

Television counting



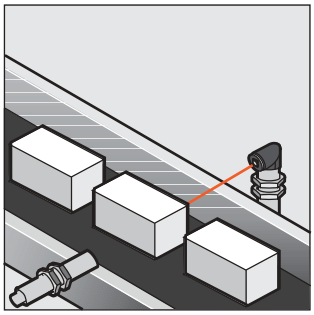
BOS 6K, 5K
Polarized retroreflective

Box control on conveyors



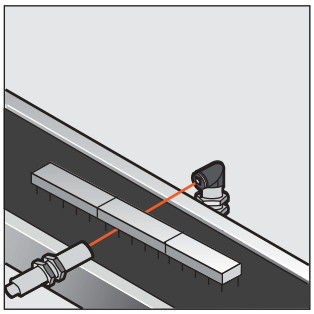
BOS 6K, 5K
Thru-beam

High speed parts detection



18M Laser
Thru-beam

Circuit lead counting



18M Laser
Thru-beam