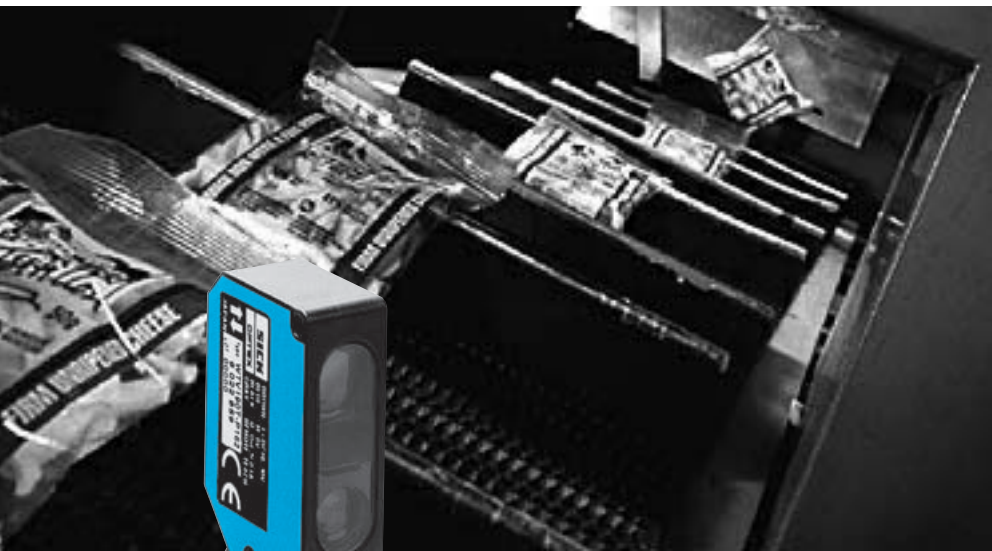


W 190 L: Laser Technology at economical prices



A standard feature is the light/dark selector switch, providing great flexibility and allowing the W 190 L to be adapted to a wide variety of applications.

The option of a rotating M8 connector or 2 m cable version is available as standard, and yellow and green LEDs provide practical and user friendly assistance with commissioning and calibration.

The compact, industry-standard plastic housing permits the use of the device even in harsh environments.

WTB 190 L, with precise, adjustable background suppression (BGS), is available with two different scanning ranges.

WL 190 L, with precision auto-collimated optics, enables the reliable detection of small objects, even at close range.

WS/WE 190 L, ideal for applications requiring a large system reserve.

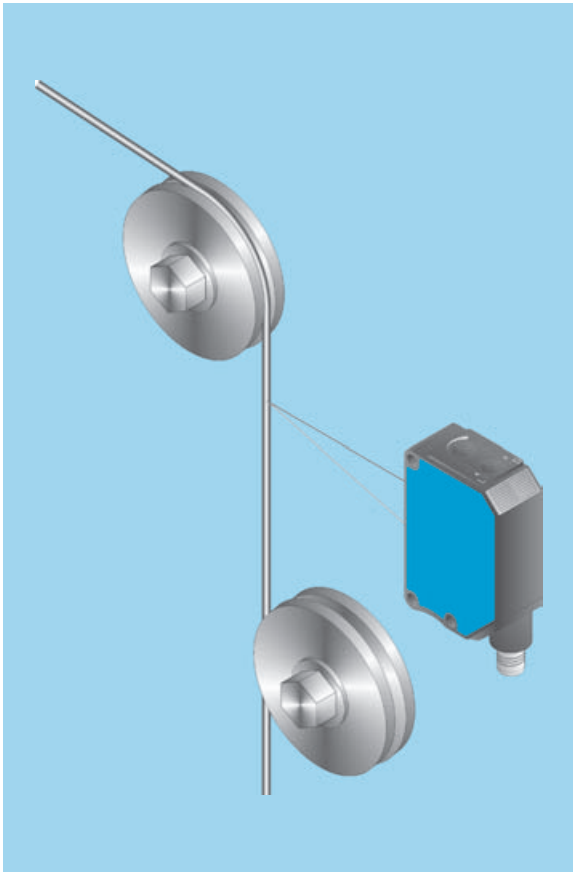
Do your customers require reliable, economical Laser Technology for standard applications? The photoelectric switches W 190 L series with laser technology are reliable, user friendly and economical.

All sensors have red-light laser diodes, which conform to Protection Class 2. The precise visible light spot allows fast and accurate alignment of the sensors to the target. The small light spot allows the reliable detection of even the smallest objects.

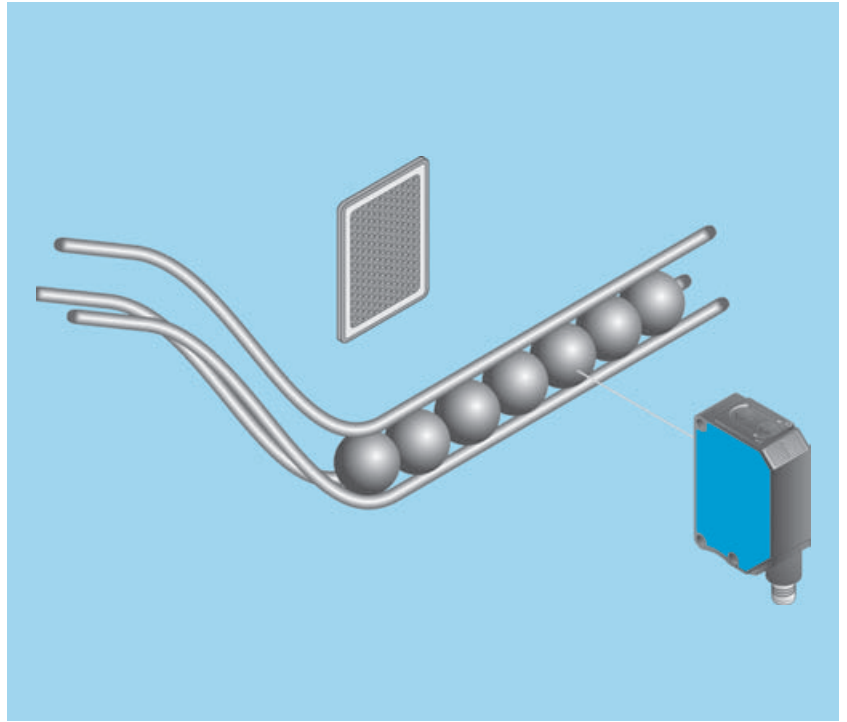
The sensors' fast response times make them ideal for most high-speed applications.

	BGS Photoelectric proximity switches
	Photoelectric reflex switches
	Through-beam photoelectric switches

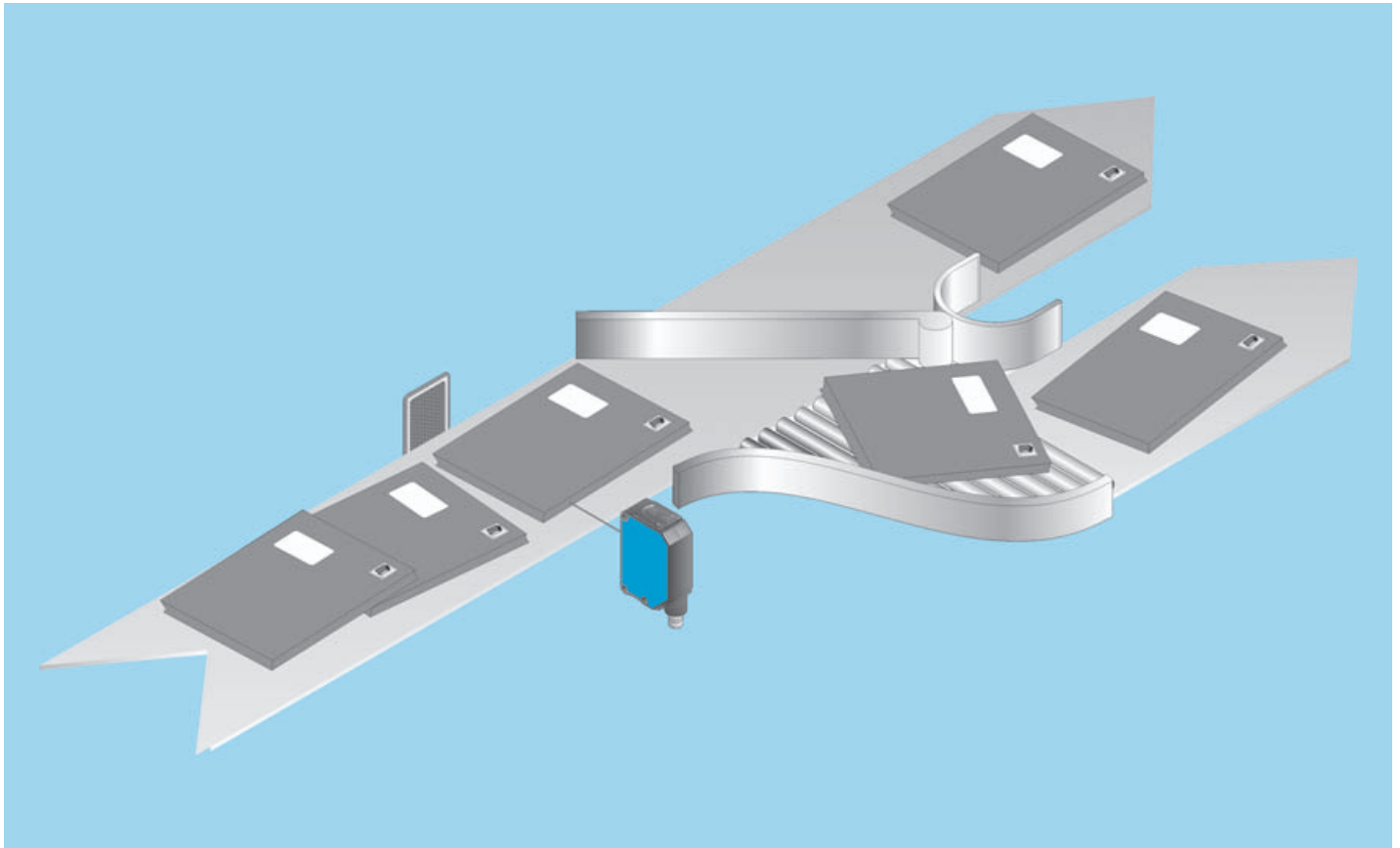




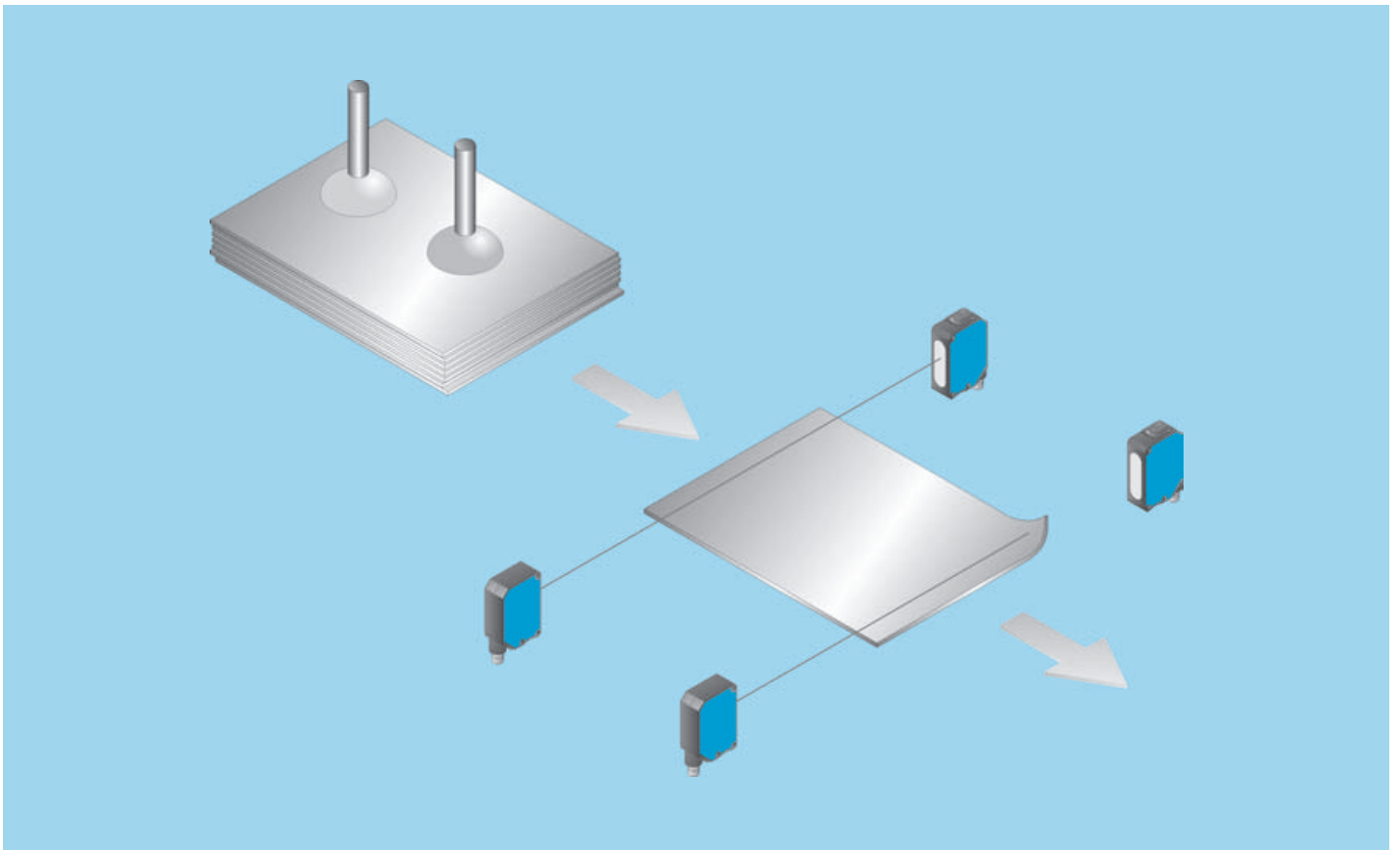
▲ WTB 190 T: Wire break test.
Sector: assembly technology.



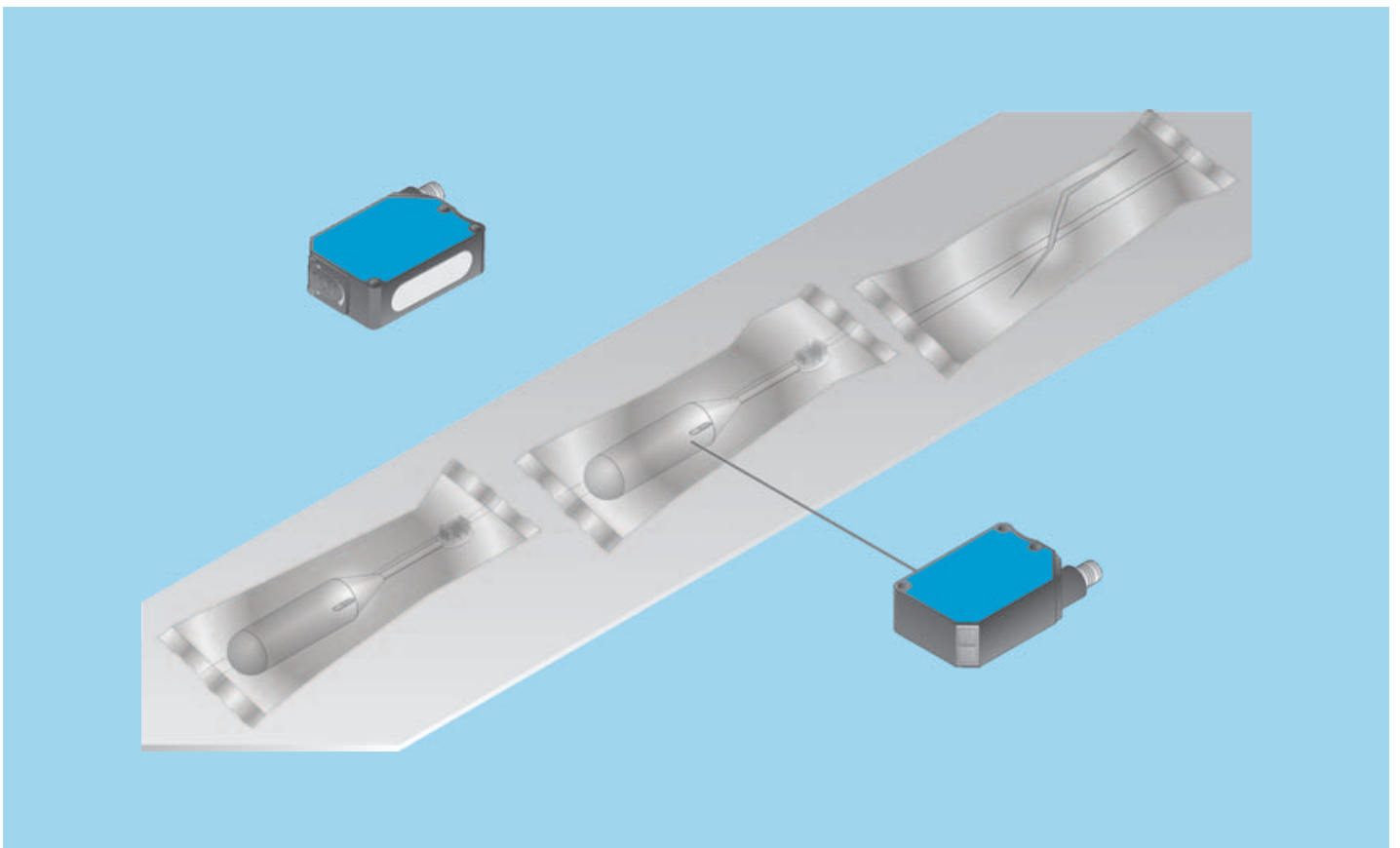
▲ WL 190 L: Component detection, e.g. components for bearings.
Sector: assembly technology.




▲ WL 190 L: Gap check, for anti-collision.
Sector: mail distribution.



▲ WS/WE 190 L: Detection of overweight sheet metal parts.
Sector: metal working.

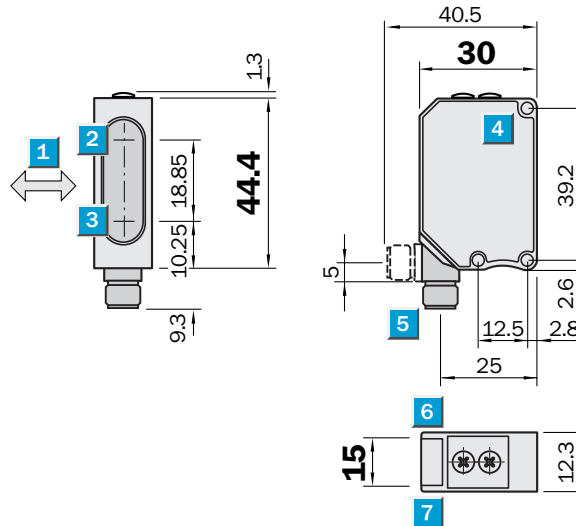


▲ WS/WE 190 L: Completeness check.
In this example: Is the product in the outer packaging?
Sector: packaging industry.


Scanning distance
100 ... 300 mm
Photoelectric proximity switches

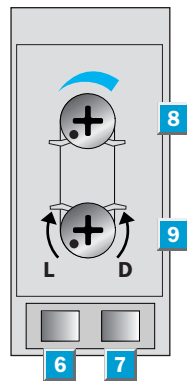
- Laser LED, visible red-light, Class 2
- User friendly sensor, easily aligned and set up
- Precise background suppression
- Set via rotary switch
- Selectable output: Light/dark switching

Dimension illustration



Setting options

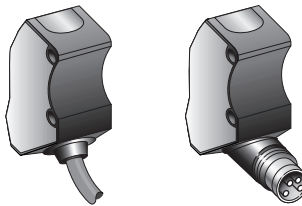
All types



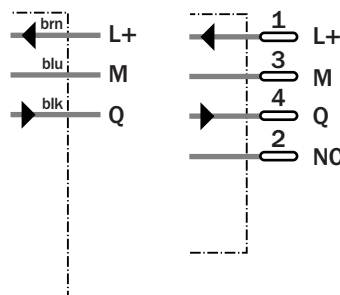
- 1 Standard direction of the material being scanned
- 2 Centre of optical axis, sender
- 3 Centre of optical axis, receiver
- 4 Mounting holes, Ø approx. 3.1 mm
- 5 Plug 4-pin, M8, 90° rotatable or cable 2 m, 3-wire
- 6 Status indicator LED, yellow: output active
- 7 Status indicator LED, green: Laser on
- 8 Scanning range adjustment
- 9 L.ON/D.ON selection switch

Connection types

WTB 190L-P 162	WTB 190L-P 460
WTB 190L-N 162	WTB 190L-N 460



3 x 0.18 mm² 4-pin, M8



Laser class 2

Accessories

Connectors
Mounting systems

Technical data		WTB 190 L-	P 162	P 460	N 162	N 460						
Scanning distance, adjustable	100 ... 300 mm ¹⁾											
Adjustment	Potentiometer, 4 turns volume											
Light source ²⁾	Laser, red light; class 2											
Light spot diameter	2,5 mm at distance of 200 mm											
Supply voltage V _s	10 ... 30 V DC ³⁾											
Ripple ⁴⁾	± 10 %											
Current consumption ⁵⁾	Max. 40 mA											
Switching outputs	PNP											
	NPN											
Output current I _A max.	< 100 mA											
Switching mode	Light/dark mode ⁶⁾ , selectable											
Response time ⁷⁾	0.7 ms											
Switching frequency max. ⁸⁾	700/s											
Connection types Cable	3-wire ⁹⁾											
	Plug	4-pin, M8										
VDE protection class ¹⁰⁾	⊕											
Circuit protection ¹¹⁾	A, B											
Enclosure rating	IP 67											
Ambient temperature	Operation - 10...+ 40 °C											
	Storage - 20...+ 60 °C											
Weight	With cable 2 m approx. 200 g											
	With plug approx. 120 g											
Housing material	Housing: ABS; optic: PMMA											

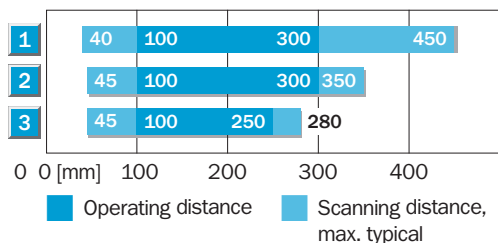
1) Object with 90 % reflectance (with reference to standard white according to DIN 5033)
 2) Average service life 50,000 h at T_A = + 25 °C

3) Limit values
 4) Must be within V_s tolerances
 5) Without load
 6) Via "select button"

7) With resistive load
 8) With light/dark ratio 1:1
 9) Do not bend below 0 °C
 10) Reference voltage 50 V DC

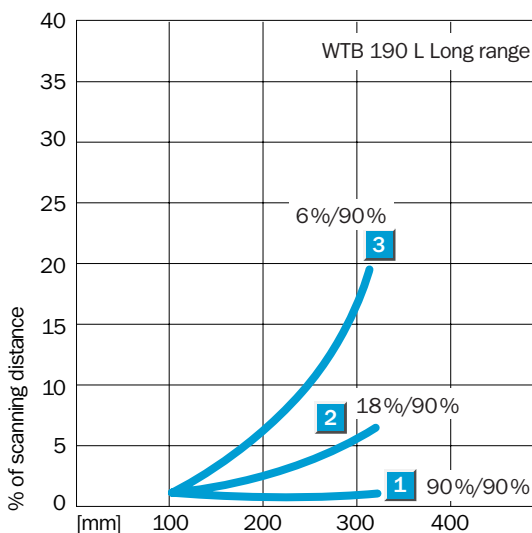
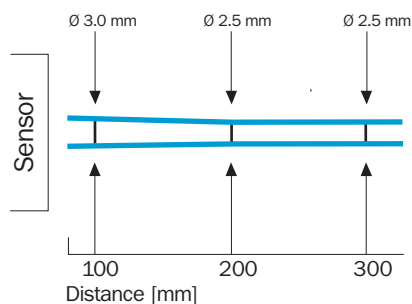
11) A = V_s connections reverse-polarity protected
 B = Output Q short-circuit protected

Scanning distance



- 1 Scanning range on white, 90 % remission
- 2 Scanning range on grey, 18 % remission
- 3 Scanning range on black, 6 % remission


Light spot diameter



Order information^{*)}

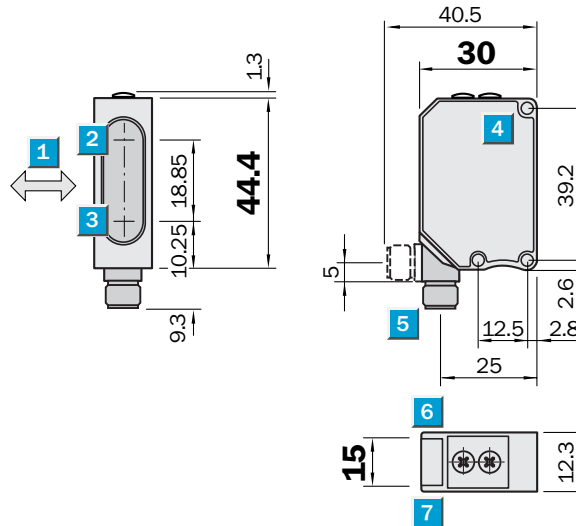
Type	Part no.
WTB 190L-P 162	6 026 553
WTB 190L-P 460	6 026 554
WTB 190L-N 162	6 026 551
WTB 190L-N 460	6 026 552

*) Equipment model with 5 m PVC cable or M8 plug, 3-pin on request


Scanning distance
 40 ... 100 mm
Photoelectric proximity switch

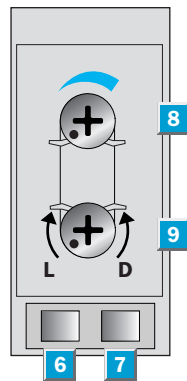
- Laser LED, visible red-light, Class 2
- User friendly sensor, easily aligned and set up
- Precise background suppression
- Set via rotary switch
- Selectable output: Light/dark switching

Dimension illustration



Setting options

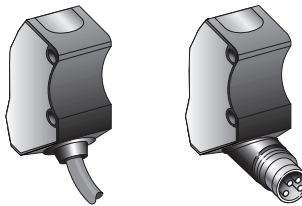
All types



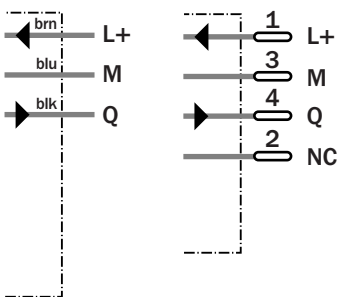
- 1 Standard direction of the material being scanned
- 2 Centre of optical axis, sender
- 3 Centre of optical axis, receiver
- 4 Mounting holes, Ø approx. 3.1 mm
- 5 Plug 4-pin, M8, 90° rotatable or cable 2 m, 3-wirer
- 6 Status indicator LED, yellow: output active
- 7 Status indicator LED, green: Laser on
- 8 Scanning range adjustment
- 9 L.ON/D.ON selection switch

Connection types

WTB 190L-P 132	WTB 190L-P 430
WTB 190L-N 132	WTB 190L-N 430



3 x 0.18 mm² 4-pin, M8



Laser class 2

Accessories

Connectors
Mounting systems

Technical data		WTB 190 L-	P 132	P 430	N 132	N 430
Scanning distance, adjustable	40 ... 100 mm ¹⁾					
Adjustment	Potentiometer, 4 turns volume					
Light source ²⁾	Laser, red light; class 2					
Light spot diameter	2 mm at distance of 80 mm					
Supply voltage V _s	10 ... 30 V DC ³⁾					
Ripple ⁴⁾	± 10 %					
Current consumption ⁵⁾	Max. 40 mA					
Switching outputs	PNP					
	NPN					
Output current I _A max.	< 100 mA					
Switching mode	Light/dark mode ⁶⁾ , selectable					
Response time ⁷⁾	0.7 ms					
Switching frequency max. ⁸⁾	700/s					
Connection types Cable	3-wire ⁹⁾					
Plug	4-pin, M8					
VDE protection class ¹⁰⁾	⊕					
Circuit protection ¹¹⁾	A, B					
Enclosure rating	IP 67					
Ambient temperature	Operation - 10...+ 40 °C					
	Storage - 20...+ 60 °C					
Weight	With cable 2 m approx. 200 g					
	With plug approx. 120 g					
Housing material	Housing: ABS; optic: PMMA					

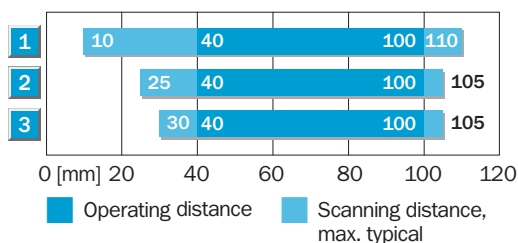
1) Object with 90 % reflectance (with reference to standard white according to DIN 5033)
 2) Average service life 50,000 h at T_A = + 25 °C

3) Limit values
 4) Must be within V_s tolerances
 5) Without load
 6) Via „select button“

7) With resistive load
 8) With light/dark ratio 1:1
 9) Do not bend below 0 °C
 10) Reference voltage 50 V DC

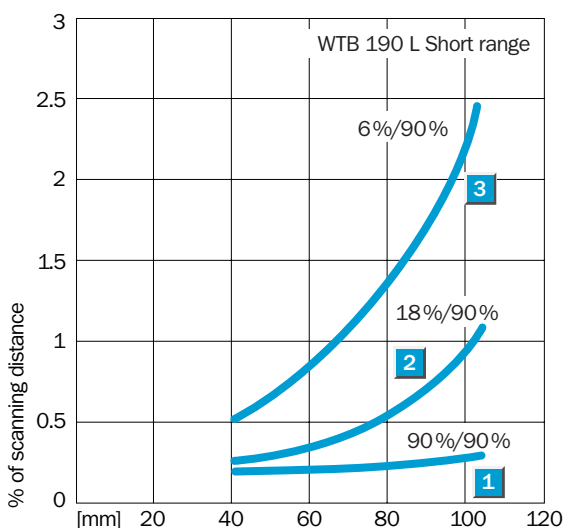
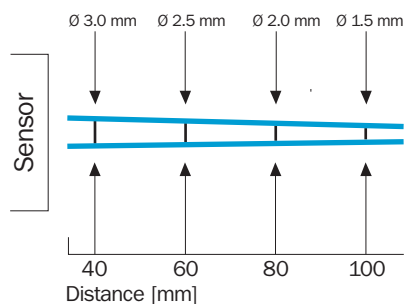
11) A = V_s connections reverse-polarity protected
 B = Output Q short-circuit protected

Scanning distance



- 1 Scanning range on white, 90 % remission
- 2 Scanning range on grey, 18 % remission
- 3 Scanning range on black, 6 % remission


Light spot diameter



Order information^{*)}

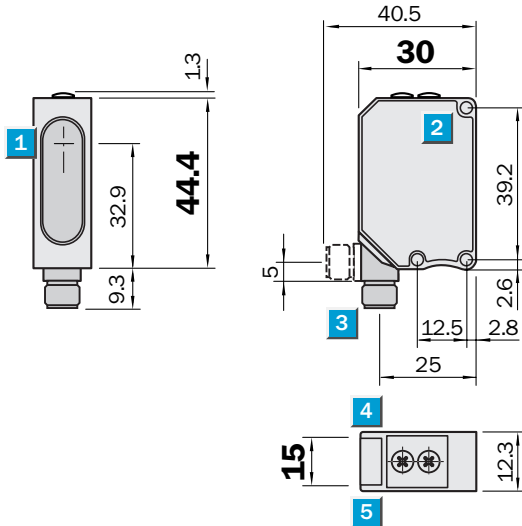
Type	Part no.
WTB 190L-P 132	6 026 549
WTB 190L-P 430	6 026 550
WTB 190L-N 132	6 026 547
WTB 190L-N 430	6 026 548

*) Equipment model with 5 m PVC cable or M8 plug, 3-pin on request


Scanning range
0.01 ... 5.5 m
 Photoelectric reflex switches

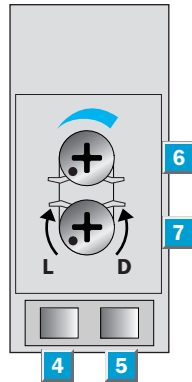
- Laser LED, visible red-light, Class 2
- User friendly sensor, easily aligned and set up
- Sensitivity setting via rotary switch
- Precision auto-collimated optics
- Selectable output: Light/dark switching

Dimension illustration



Setting options

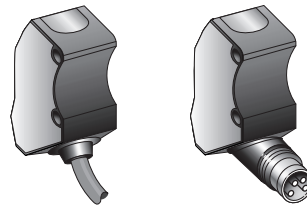
All types



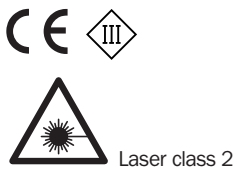
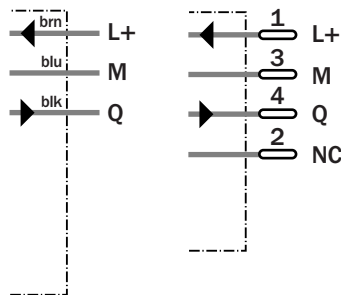
- 1** Centre of optical axis
- 2** Mounting holes, Ø approx. 3.1 mm
- 3** Plug 4-pin, M8, 90° rotatable or cable 2 m, 3-wire
- 4** Status indicator LED, yellow: output active
- 5** Status indicator LED, green: Laser on
- 6** Sensitivity control
- 7** L.ON/D.ON selection switch

Connection types

WL 190L-P 132	WL 190L-P 430
WL 190L-N 132	WL 190L-N 430



3 x 0.18 mm² 4-pin, M8



Accessories

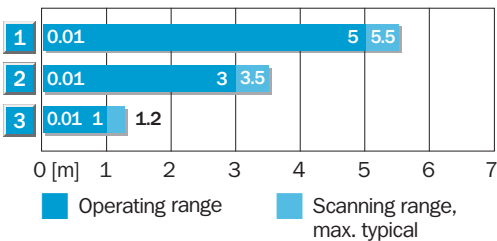
Connectors
Reflectors
Mounting systems

Technical data	WL 190L-	P 132	P 430	N 132	N 430						
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Scanning range , max. typical/on refl. ¹⁾	0.01... 5.5 m/P 250 F										
Sensitivity, adjustable	Potentiometer, 1 turn volume										
Light source ²⁾	Laser, red light; class 2										
Light spot diameter	45 mm at distance of 5 m										
Supply voltage V _s	10...30 V DC ³⁾										
Ripple ⁴⁾	± 10 %										
Current consumption ⁵⁾	Max. 40 mA										
Switching outputs	PNP										
	NPN										
Output current I _A max.	< 100 mA										
Switching mode	Light/dark mode ⁶⁾ , selectable										
Response time ⁷⁾	< 0.5 ms										
Switching frequency max. ⁸⁾	1000/s										
Connection types Cable	3-wire ⁹⁾										
	Plug	4-pin, M8									
VDE protection class ¹⁰⁾	⊕										
Circuit protection ¹¹⁾	A, B										
Enclosure rating	IP 67										
Ambient temperature	Operation - 10...+ 40 °C										
	Storage - 20...+ 60 °C										
Weight	With cable 2 m approx. 200 g										
	With plug approx. 120 g										
Housing material	Housing: ABS; optic: PMMA										

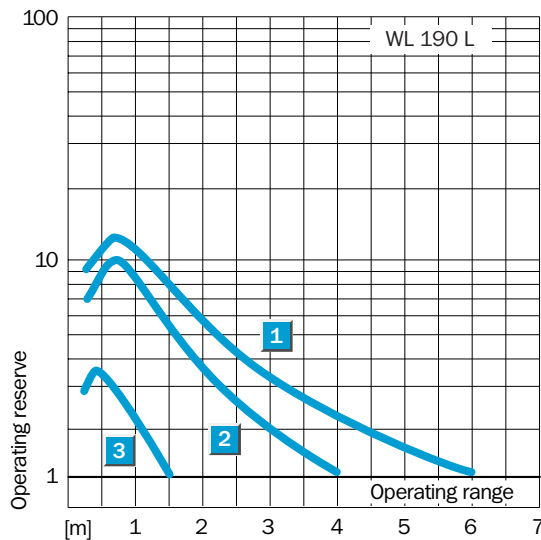
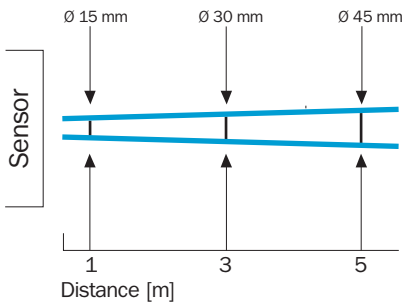
1) Reflector P 250 F included with delivery
 2) Average service life 50,000 h at T_A = + 25 °C
 3) Limit values
 4) Must be within V_s tolerances
 5) Without load
 6) Via "select button"
 7) With resistive load
 8) With light/dark ratio 1:1
 9) Do not bend below 0 °C
 10) Reference voltage 50 V DC
 11) A = V_s connections reverse-polarity protected
 B = Output Q short-circuit protected

Scanning range



Reflector type	Operating range
1 P 250 F	0.01... 5 m
2 PL 20 F	0.01... 3 m
3 PL 10 F	0.01... 1 m

Light spot diameter



Order information^{*)}

Type	Part no.
WL 190L-P 132	6 026 557
WL 190L-P 430	6 026 558
WL 190L-N 132	6 026 555
WL 190L-N 430	6 026 556

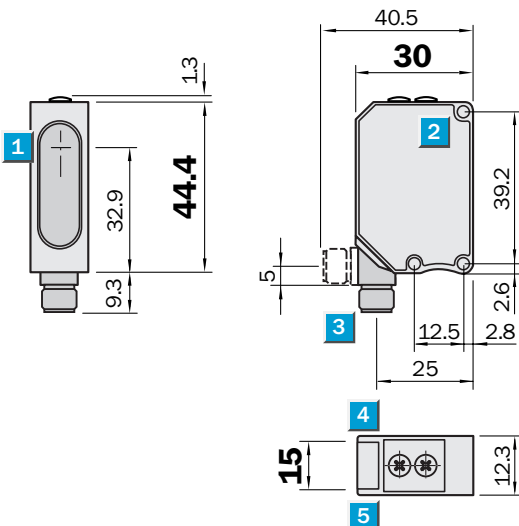
*) Equipment model with 5 m PVC cable or M8 plug, 3-pin on request

Scanning range
0 ... 50 m

Through-beam photoelectric switches

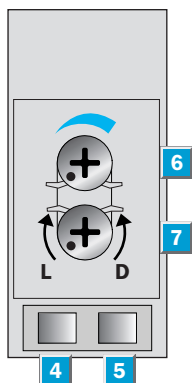
- Laser LED, visible red-light, Class 2
- User friendly sensor, easily aligned and set up
- Sensitivity setting via rotary switch
- Precision auto-collimated optics
- Selectable output: Light/dark switching

Dimension illustration



Setting options

All types



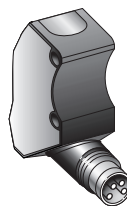
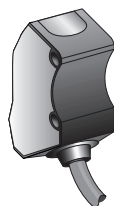
- 1 Centre of optical axis
- 2 Mounting holes, Ø approx. 3.1 mm
- 3 Plug 4-pin, M8, 90° rotatable or cable 2 m, 3-wire
- 4 Status indicator LED, yellow: output active
- 5 Status indicator LED, green: Laser on
- 6 Sensitivity control
- 7 L.ON/D.ON selection switch



Connection types

WS/WE 190L-P 132
WS/WE 190L-N 132

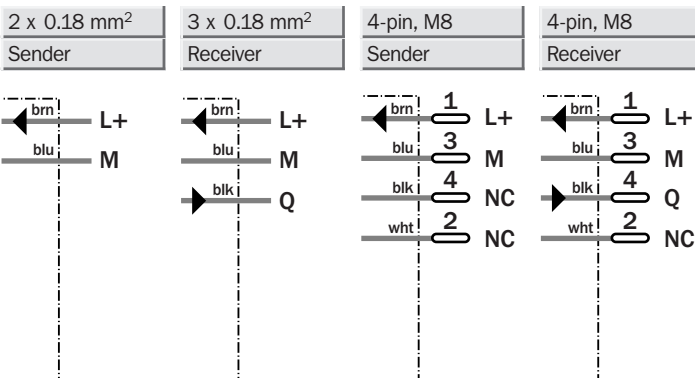
WS/WE 190L-P 430
WS/WE 190L-N 430



Laser class 2

Accessories

- Connectors
- Mounting systems

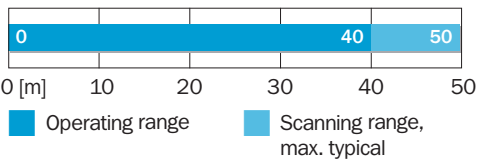


Technical data	WS/WE 190L-	P 132	P 430	N 132	N 430						
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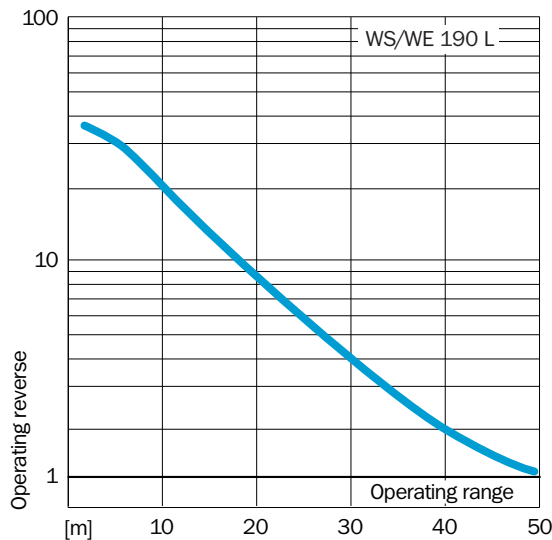
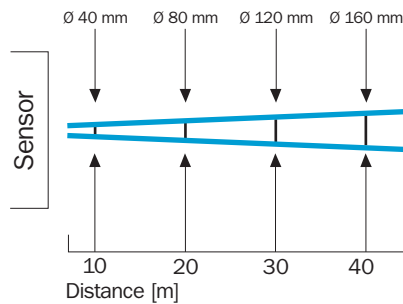
Scanning range , max. typical	50 m, adjustable										
Sensitivity, adjustable	Potentiometer, 1 turn volume										
Light source ¹⁾	Laser, red light; class 2										
Light spot diameter	40 mm at distance of 10 m										
Supply voltage V_s	10 ... 30 V DC ²⁾										
Ripple ³⁾	± 10 %										
Current consumption ⁴⁾	Max. 40 mA										
Switching outputs	PNP										
	NPN										
Output current I_A max.	< 100 mA										
Switching mode	Light/dark mode ⁵⁾ , selectable										
Response time ⁶⁾	< 0.5 ms										
Switching frequency max. ⁷⁾	1000/s										
Connection types Cable	3-wire ⁸⁾										
	Plug	4-pin, M8									
VDE protection class ⁹⁾	II										
Circuit protection ¹⁰⁾	A, B										
Enclosure rating	IP 67										
Ambient temperature	Operation - 10...+ 40 °C										
	Storage - 20...+ 60 °C										
Weight	With cable 2 m approx. 200 g										
	With plug approx. 120 g										
Housing material	Housing: ABS; optic: PMMA										

1) Average service life 50,000 h at $T_A = +25\text{ °C}$
 2) Limit values
 3) Must be within V_s tolerances
 4) Without load
 5) Via "select button"
 6) With resistive load
 7) With light/dark ratio 1:1
 8) Do not bend cable below 0 °C
 9) Reference voltage 50 V DC
 10) A = V_s connections reverse-polarity protected
 B = Output Q short-circuit protected

Scanning range and operating reserve



Light spot diameter



Order information^{*)}

Type	Part no.
WS/WE 190L-P132	6 026 561
WS/WE 190L-P430	6 026 562
WS/WE 190L-N132	6 026 559
WS/WE 190L-N430	6 026 560

*) Equipment model with 5 m PVC cable or M 8 plug, 3-pin on request

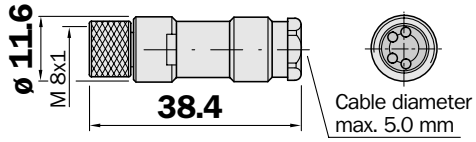
Dimensional drawings and order information

Contact assignment according to EN 50044

SENSICK screw-in system M8, 4-pin, enclosure rating IP 67

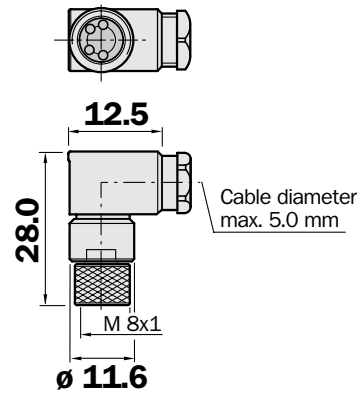
Female connector M8, 4-pin, straight

Type	Part no.
DOS-0804-G	6 009 974



Female connector M8, 4-pin, right angle

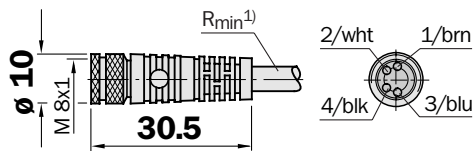
Type	Part no.
DOS-0804-W	6 009 975



Female connector M8, 4-pin, straight

Cable diameter 5 mm, 4 x 0.25 mm², sheath PVC

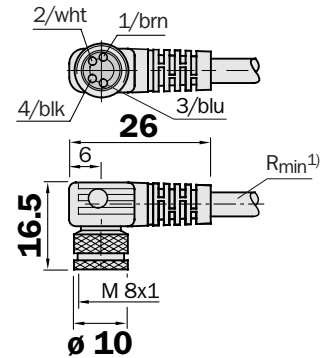
Type	Part no.	Cable length
DOL-0804-G02M	6 009 870	2 m
DOL-0804-G05M	6 009 872	5 m
DOL-0804-G10M	6 010 754	10 m



Female connector M8, 4-pin, right angle

Cable diameter 5 mm, 4 x 0.25 mm², sheath PVC

Type	Part no.	Cable length
DOL-0804-W02M	6 009 871	2 m
DOL-0804-W05M	6 009 873	5 m
DOL-0804-W10M	6 010 755	10 m



¹⁾ Minimum bend radius in dynamic use
 $R_{min} = 20 \times \text{cable diameter}$

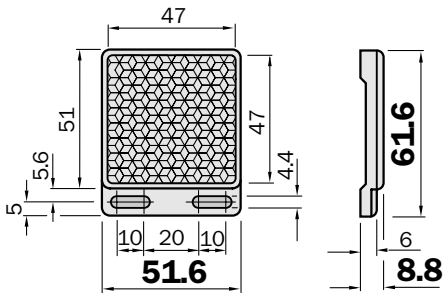
Dimensional drawings and order information

Reflectors

Plastic design for temperatures up to 65 °C

Reflector, 47 x 47 mm²

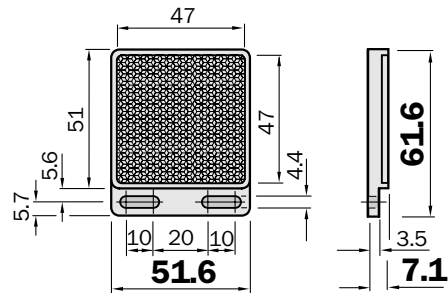
Type	Part no.
P 250	5 304 812



Reflector, 47 x 47 mm²

micro triple, 2 hole mounting

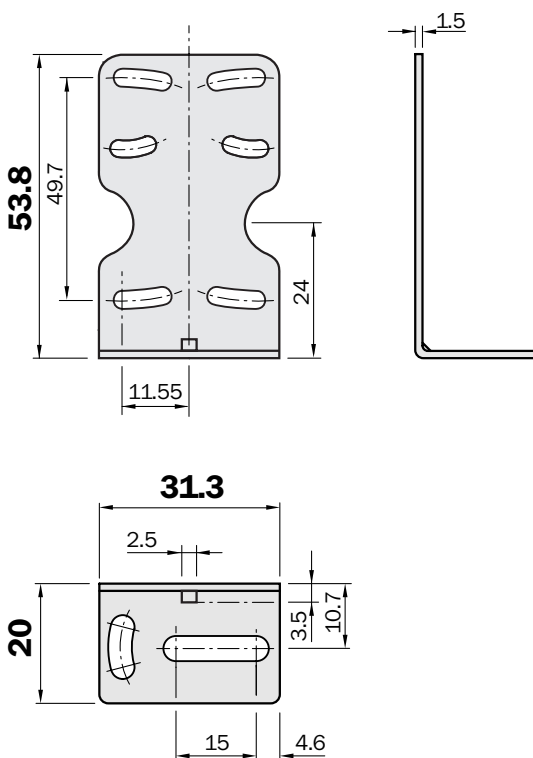
Type	Part no.
P 250 F	5 308 843



Mounting systems

Mounting bracket for W 190 L (included with delivery)

Type	Part no.
BEF-WK-W190	5 311 362



Your contacts:

Australia

Phone +61 3 94 97 41 00
1800 33 48 02 – toll free
Fax +61 3 94 97 11 87

Austria

Phone +43 2 23 66 22 88-0
Fax +43 2 23 66 22 88-5

Belgium/Luxembourg

Phone +32 24 66 55 66
Fax +32 24 63 31 04

Brazil

Phone +55 11 55 61 26 83
Fax +55 11 55 35 41 53

China

Phone +8 52 27 63 69 66
Fax +8 52 27 63 63 11

Czech Republik

Phone +42 02 578 10 561
Fax +42 02 578 10 559

Denmark

Phone +45 45 82 64 00
Fax +45 45 82 64 01

Finland

Phone +3 58-9-25 15 800
Fax +3 58-9-25 15 8055

France

Phone +33 1 64 62 35 00
Fax +33 1 64 62 35 77

Germany

Phone +49 2 11 53 01 0
Fax +49 2 11 53 01 100

Great Britain

Phone +44 17 27-83 11 21
Fax +44 17 27-85 67 67

Italy

Phone +39 02 92 14 20 62
Fax +39 02 92 14 20 67

Japan

Phone +8 13 33 58 13 41
Fax +8 13 33 58 90 48

Korea

Phone +82 2 786 63 21/4
Fax +82 2 786 63 25

Netherlands

Phone +31 30 229 25 44
Fax +31 30 229 39 94

Norway

Phone +47 67 81 50 00
Fax +47 67 81 50 01

Poland

Phone +48 22 8 37 40 50
Fax +48 22 8 37 43 88

Singapore

Phone +65 67 44 37 32
Fax +65 68 41 77 47

Spain

Phone +34 93 4 80 31 00
Fax +34 93 4 73 44 69

Sweden

Phone +46 8 6 80 64 50
Fax +46 8 7 10 18 75

Switzerland

Phone +41 4 16 19 29 39
Fax +41 4 16 19 29 21

Taiwan

Phone +88 62 23 65 62 92
Fax +88 62 23 68 73 97

USA/Canada/Mexico

Phone +1(952) 9 41-67 80
Fax +1(952) 9 41-92 87

Representatives and agencies
in all major industrial nations.

SICK