





W 100: Miniature photoelectric switch series with large scanning ranges

	Photoelectric proximity switches, BGB
	Photoelectric proximity switches, energetic
	Photoelectric reflex switches



	Through-beam photoelectric switches
--	-------------------------------------

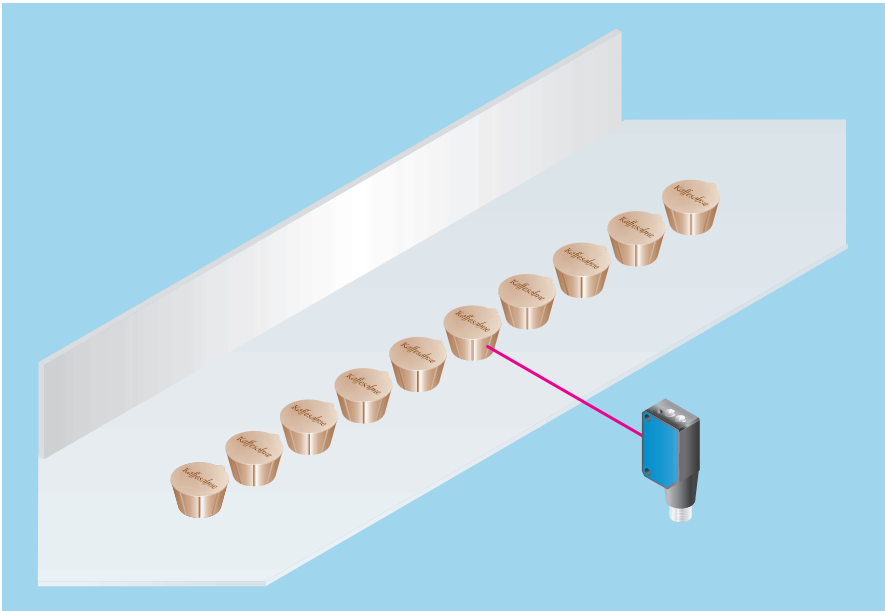
- Energetic photoelectric proximity switch: SD = 900 mm; for standard scanning jobs,
 - Photoelectric proximity switch with background blanking: SD = up to 120 mm.
- Convenient details simplify handling for assembly, operation startup and maintenance, for example:
- Sensitivity setting (optionally without),
 - Light/dark switch (optionally without),
 - Optionally connection cable or M8 plug, 3-pin/4-pin.

The W 100 is a complete photoelectric switch series in miniature housing and provides large scanning ranges at an economical price.

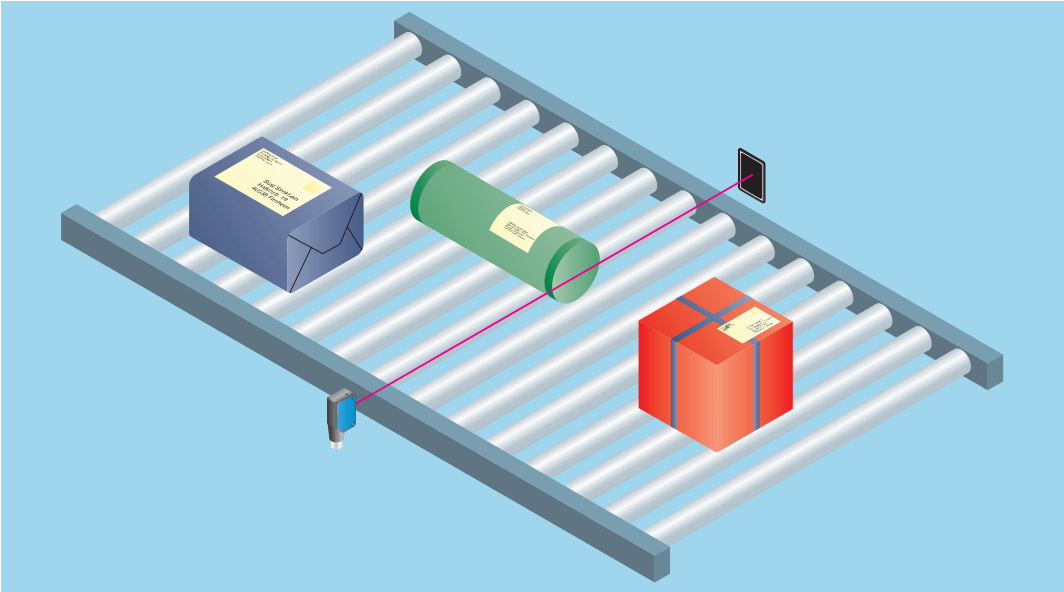
The W 100 highlights:

- Through-beam photoelectric switches: SR = 15 m;
Accessories: Slotted masks,
- Photoelectric reflex switch with polarizing filter:
SR = 6 m (PL 80 A),

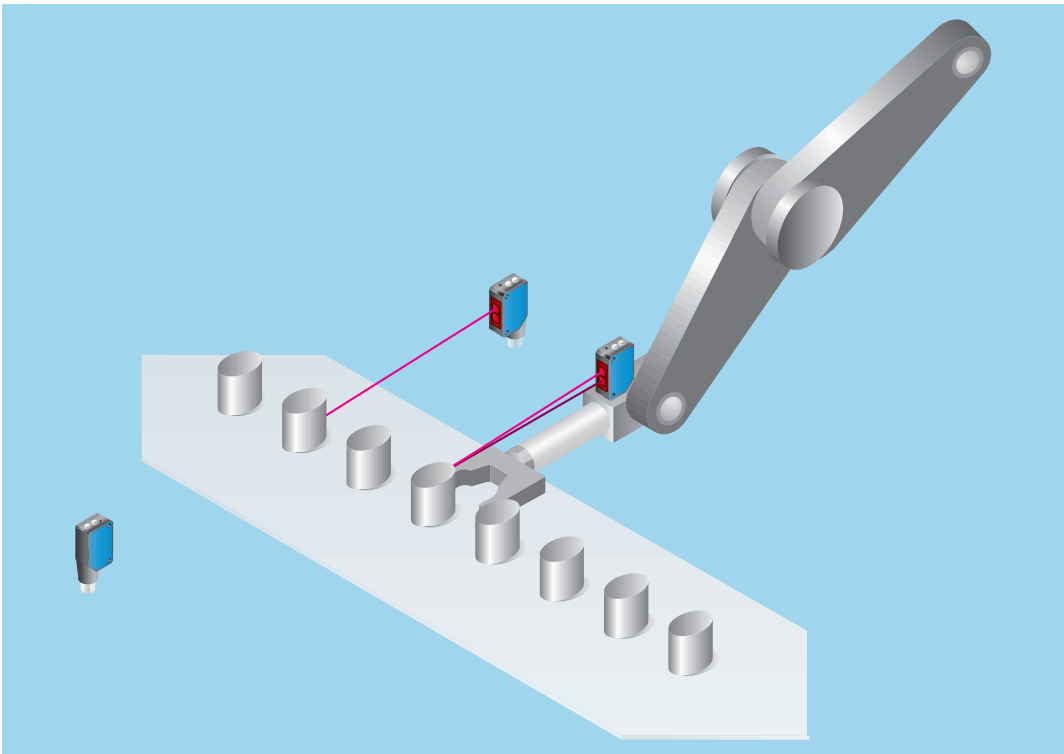
The M8 plug, 3-pin, model especially provides an extremely simple solution for the island technologies being used increasingly. Distributor boxes for plug modules or bus systems. This makes the W 100 especially interesting for the industries storage and conveyor technologies and packaging technologies.




◀ WT 100 BGB photoelectric proximity switch with background blanking: the visible red emitted light facilitates the targeting of small objects.



▶ WL 100 photoelectric reflex switches in warehousing and conveying technology.

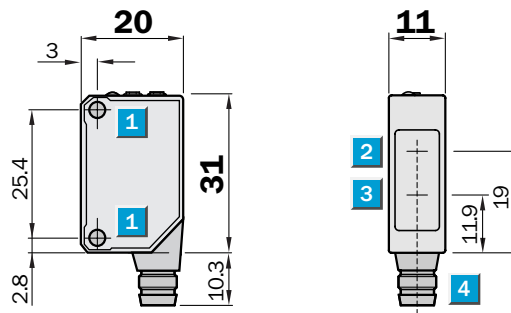


◀ The miniature housing and the wide scanning ranges offer high flexibility where space is at a premium.


Scanning distance
 4 ... 120 mm
Photoelectric proximity switches

- Photoelectric proximity switch with background blanking, visible red light as alignment aid
- Switching point adjustable

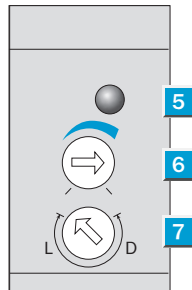
Dimensional drawing



Adjustments possible

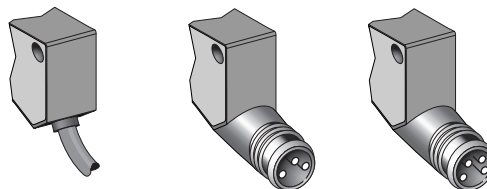
WT 100-P 1419	WT 100-N 1419
WT 100-P 3419	WT 100-N 3419
WT 100-P 4419	WT 100-N 4419

- 1** Mounting hole M3
- 2** Centre of optical axis, receiver
- 3** Centre of optical axis, sender
- 4** Plug M8, 3-pin or cable
- 5** LED signal strength indicator orange: switching output active
- 6** Sensitivity adjustment (270°)
- 7** Light/dark rotary switch: L = light-switching, D = dark-switching



Connection types

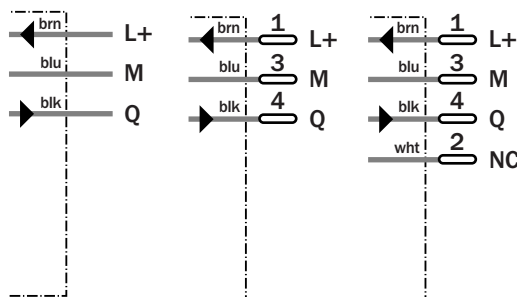
WT 100-P 1419	WT 100-P 3419	WT 100-P 4419
WT 100-N 1419	WT 100-N 3419	WT 100-N 4419



3 x 0.18 mm²

3-pin, M8

4-pin, M8



See chapter Accessories
Cables and connectors
Mounting systems

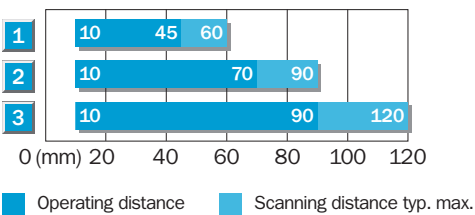
Technical data		WT 100-	P 1419	P 3419	P 4419	N 1419	N 3419	N 4419
Scanning distance, max. typical	4 ... 120 mm ¹⁾							
Operating distance	10 ... 90 mm ¹⁾							
Background blanking	From approx. 140 mm ²⁾							
Sensitivity, adjustable	Potentiometer, 270°							
Light source ³⁾ , light type	LED, visible red light							
Light spot diameter	Approx. 8 mm at 90 mm							
Supply voltage V_S ⁴⁾	10 ... 30 V DC							
Ripple ⁵⁾	± 10 %							
Current consumption ⁶⁾	≤ 30 mA							
Switching outputs	PNP, open collector: Q NPN, open collector: Q							
Switching mode, adjustable	Light-/dark-switching via rotary switch ⁷⁾							
Output current I_A max.	100 mA							
Response time ⁸⁾	≤ 0.5 ms							
Max. switching frequency ⁹⁾	1000/s							
Connection types	cable PVC, 2 m ¹⁰⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm							
	plug M8, 3-pin							
	plug M8, 4-pin							
VDE protection class	III							
Enclosure rating	IP 65							
Circuit protection ¹¹⁾	A, B, D							
Ambient temperature T_A	Operation -25 ... +55 °C Storage -40 ... +70 °C							
Weight	with cable 2 m Approx. 53 g with plug M8 Approx. 9 g							
Housing material	Housing: ABS; Optic: PC							

- 1) Object with 90 % remission (based on standard white according to DIN 5033)
- 2) Background 90 % remission
- 3) Average service life 100,000 h at $T_A = +25$ °C
- 4) Limit values

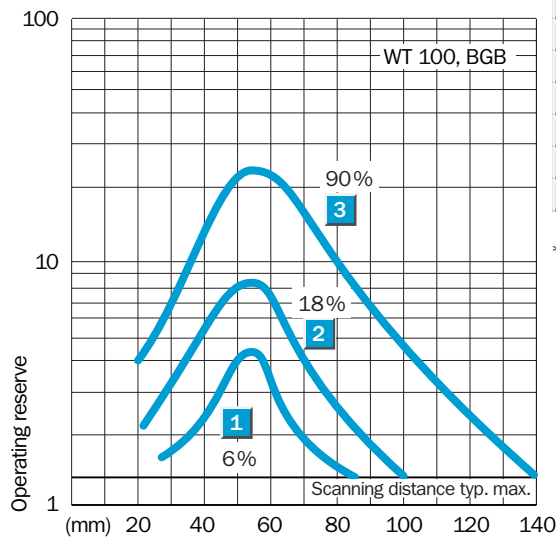
- 5) May not exceed or fall short of V_S tolerances
- 6) Without load
- 7) L = light-switching, D = dark-switching
- 8) Signal transit time with resistive load
- 9) With light/dark ratio 1:1

- 10) Do not bend below 0 °C
- 11) A = V_S connections reverse-polarity protected
B = Inputs and outputs reverse-polarity protected
D = Outputs overcurrent and short-circuit protected

Scanning distance



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



Order information *

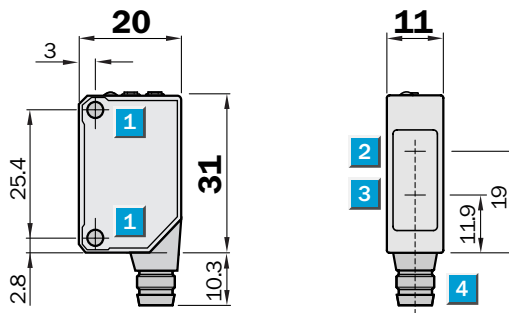
Type	Order no.
WT 100-P 1419	6 026 114
WT 100-P 3419	6 026 116
WT 100-P 4419	6 028 619
WT 100-N 1419	6 026 113
WT 100-N 3419	6 026 115
WT 100-N 4419	6 028 618

* Types without mounting brackets are also available

Scanning distance
 0 ... 900 mm
Photoelectric proximity switches

- Energetic photoelectric proximity switches – for standard applications
- Switching point adjustable

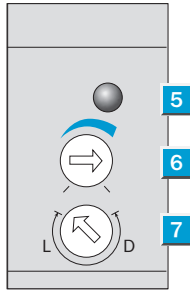
Dimensional drawing



Adjustments possible

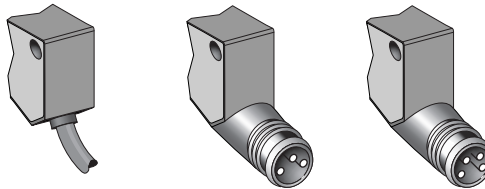
WT 100-P 1439	WT 100-N 1439
WT 100-P 3439	WT 100-N 3439
WT 100-P 4439	WT 100-N 4439

- 1** Mounting hole M3
- 2** Centre of optical axis, receiver
- 3** Centre of optical axis, sender
- 4** Plug M8, 3-pin or cable
- 5** LED signal strength indicator orange: switching output active
- 6** Sensitivity adjustment (270°)
- 7** Light/dark rotary switch: L = light-switching, D = dark-switching



Connection types

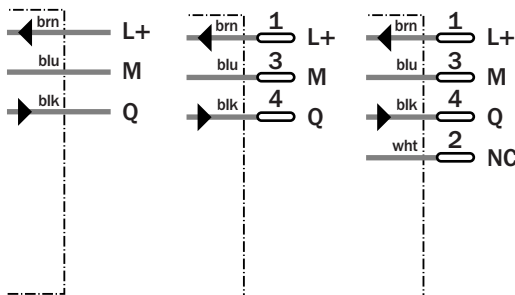
WT 100-P 1439	WT 100-P 3439	WT 100-P 4439
WT 100-N 1439	WT 100-N 3439	WT 100-N 4439



3 x 0.18 mm²

3-pin, M8

4-pin, M8



See chapter Accessories
Cables and connectors
Mounting systems

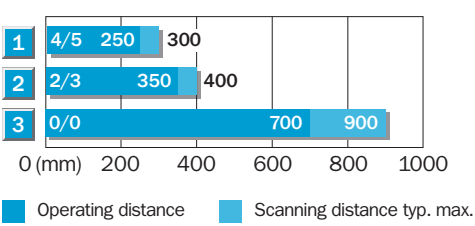
Technical data		WT 100-	P 1439	P 3439	P 4439	N 1439	N 3439	N 4439				
Scanning distance, max. typical	0 ... 900 mm ¹⁾											
Operating distance	0 ... 700 mm ¹⁾											
Sensitivity, adjustable	Potentiometer, 270°											
Light source ²⁾ , light type	LED, visible red light											
Light spot diameter	Approx. 55 mm at 400 mm											
Angle of dispersion, sender	Approx. 6.8°											
Supply voltage V_S ³⁾	10 ... 30 V DC											
Ripple ⁴⁾	± 10 %											
Current consumption ⁵⁾	≤ 30 mA											
Switching outputs	PNP, open collector: Q NPN, open collector: Q											
Switching mode, adjustable	Light-/dark-switching via rotary switch ⁶⁾											
Output current I_A max.	100 mA											
Response time ⁷⁾	≤ 0.5 ms											
Max. switching frequency ⁸⁾	1000/s											
Connection types cable	PVC, 2 m ⁹⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm											
plug	M8, 3-pin											
plug	M8, 4-pin											
VDE protection class	III											
Enclosure rating	IP 65											
Circuit protection ¹⁰⁾	A, B, D											
Ambient temperature T_A	Operation -25 ... +55 °C Storage -40 ... +70 °C											
Weight with cable 2 m	Approx. 53 g											
with plug M8	Approx. 9 g											
Housing material	Housing: ABS; Optic: PC											

1) Object with 90 % remission (based on standard white according to DIN 5033)
 2) Average service life 100,000 h at $T_A = +25 °C$
 3) Limit values

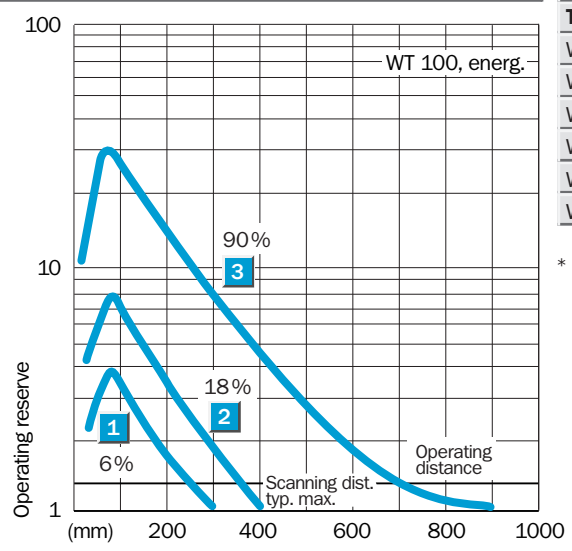
4) May not exceed or fall short of V_S tolerances
 5) Without load
 6) L = light-switching, D = dark-switching
 7) Signal transit time with resistive load
 8) With light/dark ratio 1:1

9) Do not bend below 0 °C
 10) A = V_S connections reverse-polarity protected
 B = Inputs and outputs reverse-polarity protected
 D = Outputs overcurrent and short-circuit protected

Scanning distance




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



Order information *

Type	Order no.
WT 100-P 1439	6 026 079
WT 100-P 3439	6 026 081
WT 100-P 4439	6 028 615
WT 100-N 1439	6 026 078
WT 100-N 3439	6 026 080
WT 100-N 4439	6 028 614

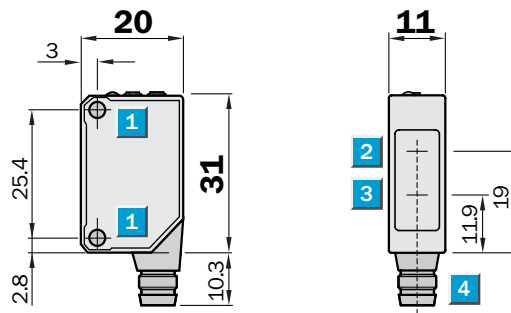
* Types without mounting brackets are also available


Scanning range
 0.01 ... 6 m

Photoelectric reflex switches

- Polarization filter and consequently reliable detection of objects with shiny surfaces too
- Also suitable for “Diamond Grade” reflective tape
- Sensitivity adjustable

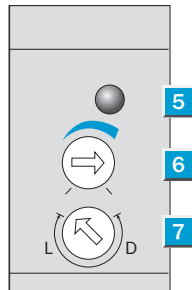
Dimensional drawing



Adjustments possible

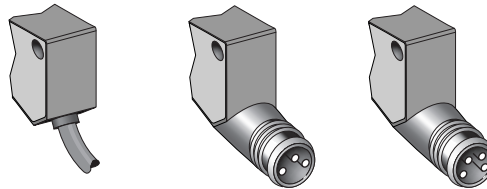
WL 100-P 1439	WL 100-N 1439
WL 100-P 3439	WL 100-N 3439
WL 100-P 4439	WL 100-N 4439

- 1** Mounting hole M3
- 2** Centre of optical axis, receiver
- 3** Centre of optical axis, sender
- 4** Plug M8, 3-pin or cable
- 5** LED signal strength indicator orange: switching output active
- 6** Sensitivity adjustment (270°)
- 7** Light/dark rotary switch: L = light-switching, D = dark-switching



Connection types

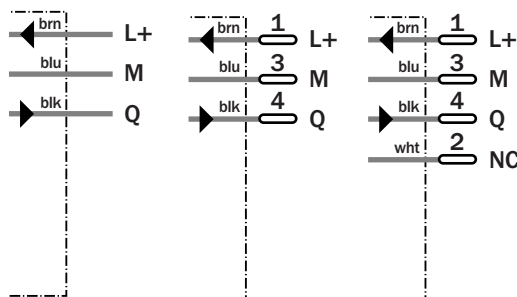
WL 100-P 1439	WL 100-P 3439	WL 100-P 4439
WL 100-N 1439	WL 100-N 3439	WL 100-N 4439



3 x 0.18 mm²

3-pin, M8

4-pin, M8



See chapter Accessories

Cables and connectors
Mounting systems
Reflectors

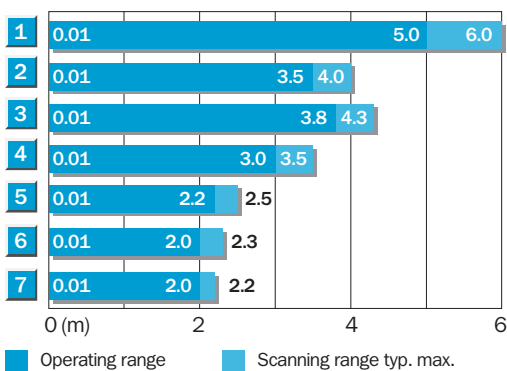
Technical data		WL 100-	P 1439	P 3439	P 4439	N1439	N3439	N4439				
Scanning range, max. typ./on reflector	0.01 ... 6.0 m/PL 80 A											
	0.01 ... 4.0 m/P 250 ⁴⁾											
	0.01 ... 2.2 m/P 45											
Operating range	0.01 ... 5.0 m/PL 80 A											
	0.01 ... 3.5 m/P 250											
	0.01 ... 2.0 m/P 45											
Sensitivity, adjustable	Potentiometer, 270°											
Light source²⁾, light type	LED, visible red light with polarizing filter											
Light spot diameter	Approx. 250 mm at 3.5 m											
Angle of dispersion, sender	Approx. 4°											
Supply voltage V_S³⁾	10 ... 30 V DC											
Ripple ⁴⁾	± 10 %											
Current consumption ⁵⁾	≤ 30 mA											
Switching outputs	PNP, open collector: Q											
	NPN, open collector: Q											
Switching mode, adjustable	Light-/dark-switching via rotary switch ⁶⁾											
Output current I _A max.	100 mA											
Response time ⁷⁾	≤ 0.5 ms											
Max. switching frequency ⁸⁾	1000/s											
Connection types	cable	PVC, 2 m ⁹⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm										
	plug	M8, 3-pin										
	plug	M8, 4-pin										
VDE protection class	III											
Enclosure rating	IP 65											
Circuit protection¹⁰⁾	A, B, D											
Ambient temperature T_A	Operation	-25 ... +55 °C										
	Storage	-40 ... +70 °C										
Weight	with cable 2 m	Approx. 53 g										
	with plug M8	Approx. 9 g										
Housing material	Housing: ABS; Optic: PMMA											

- 1) Reflector P 250 included with delivery
- 2) Average service life 100,000 h at T_A = +25 °C
- 3) Limit values
- 4) May not exceed or fall short of V_S tolerances

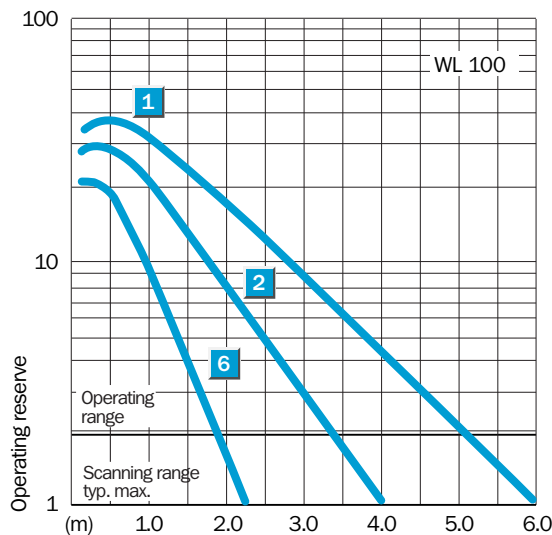
- 5) Without load
- 6) L = light-switching, D = dark-switching
- 7) Signal transit time with resistive load
- 8) With light/dark ratio 1:1
- 9) Do not bend below 0 °C

- 10) A = V_S connections reverse-polarity protected
- B = Inputs and outputs reverse-polarity protected
- D = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve




Reflector type	Operating range
1 PL 80 A	0.01 ... 5.0 m
2 P 250	0.01 ... 3.5 m
3 PL 50 A/PL 40 A	0.01 ... 3.8 m
4 PL 30 A/PL 31 A	0.01 ... 3.0 m
5 PL 20 A	0.01 ... 2.2 m
6 Reflective tape Diamond Grade	0.01 ... 2.0 m
7 P 45	0.01 ... 2.0 m



Order information *

Type	Order no.
WL 100-P 1439	6 026 067
WL 100-P 3439	6 026 073
WL 100-P 4439	6 028 607
WL 100-N 1439	6 026 064
WL 100-N 3439	6 026 070
WL 100-N 4439	6 028 604

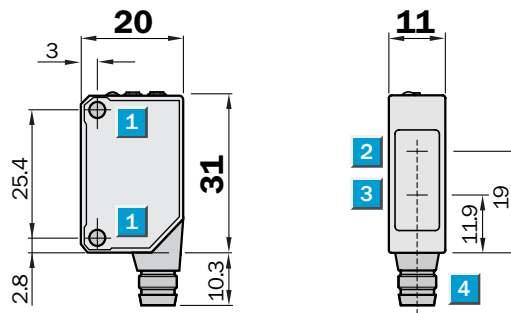
* Types without mounting brackets and reflector P 250 are also available


Scanning range
 0.01 ... 6 m

Photoelectric reflex switches

- Polarization filter and consequently reliable detection of objects with shiny surfaces too
- Also suitable for “Diamond Grade” reflective tape
- Light- or dark-switching

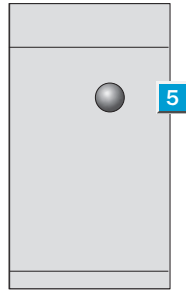
Dimensional drawing



Adjustments possible

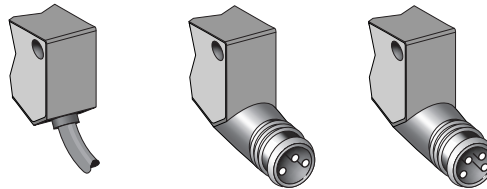
WL 100-P 1239	WL 100-P 3339
WL 100-P 1339	WL 100-P 4239
WL 100-P 3239	WL 100-P 4339

- 1** Mounting hole M3
- 2** Centre of optical axis, receiver
- 3** Centre of optical axis, sender
- 4** Plug M8, 3-pin or cable
- 5** LED signal strength indicator orange: switching output active



Connection types

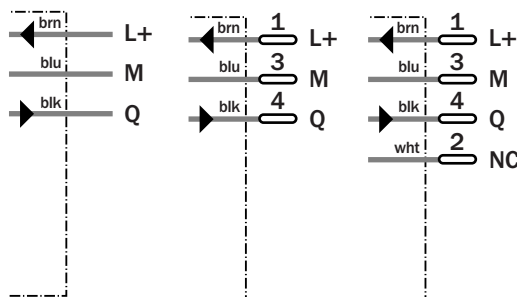
WL 100-P 1239	WL 100-P 3239	WL 100-P 4239
WL 100-P 1339	WL 100-P 3339	WL 100-P 4339



3 x 0.18 mm²

3-pin, M8

4-pin, M8



See chapter Accessories

Cables and connectors
Mounting systems
Reflectors

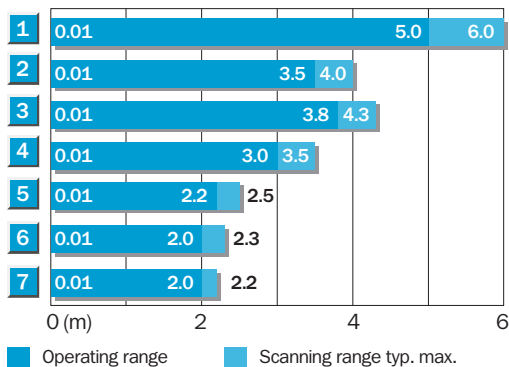
Technical data		WL 100-	P 1239	P 1339	P 3239	P 3339	P 4239	P 4339
Scanning range, max. typ./on reflector	0.01 ... 6.0 m/PL 80 A							
	0.01 ... 4.0 m/P 250 ¹⁾							
	0.01 ... 1.5 m/P 45							
Operating range	0.01 ... 5.0 m/PL 80 A							
	0.01 ... 3.5 m/P 250							
	0.01 ... 1.2 m/P 45							
Light source²⁾, light type	LED, visible red light with polarising filter							
Light spot diameter	Approx. 250 mm at 3.5 m							
Angle of dispersion, sender	Approx. 4°							
Supply voltage V_S³⁾	10 ... 30 V DC							
Ripple ⁴⁾	± 10 %							
Current consumption ⁵⁾	≤ 30 mA							
Switching outputs	PNP, open collector: Q							
Switching mode	Light-switching							
	Dark-switching							
Output current I _A max.	100 mA							
Response time ⁶⁾	≤ 0.5 ms							
Max. switching frequency ⁷⁾	1000/s							
Connection types	cable	PVC, 2 m ⁸⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm						
	plug	M8, 3-pin						
	plug	M8, 4-pin						
VDE protection class	III							
Enclosure rating	IP 65							
Circuit protection⁹⁾	A, B, D							
Ambient temperature T_A	Operation	-25 ... +55 °C						
	Storage	-40 ... +70 °C						
Weight	with cable 2 m	Approx. 53 g						
	with plug M8	Approx. 9 g						
Housing material	Housing: ABS; Optic: PMMA							

- 1) Reflector P 250 included with delivery
- 2) Average service life 100,000 h at T_A = +25 °C
- 3) Limit values
- 4) May not exceed or fall short of V_S tolerances

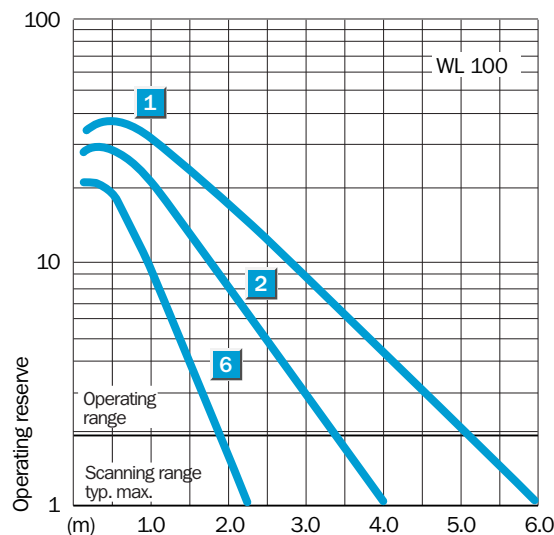
- 5) Without load
- 6) Signal transit time with resistive load
- 7) With light/dark ratio 1:1
- 8) Do not bend below 0 °C

- 9) A = V_S connections reverse-polarity protected
- B = Inputs and outputs reverse-polarity protected
- D = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve




Reflector type	Operating range
1 PL 80 A	0.01 ... 5.0 m
2 P 250	0.01 ... 3.5 m
3 PL 50 A/PL 40 A	0.01 ... 3.8 m
4 PL 30 A/PL 31 A	0.01 ... 3.0 m
5 PL 20 A	0.01 ... 2.2 m
6 Reflective tape Diamond Grade	0.01 ... 2.0 m
7 P 45	0.01 ... 2.0 m



Order information *

Type	Order no.
WL 100-P 1239	6 026 065
WL 100-P 1339	6 026 066
WL 100-P 3239	6 026 071
WL 100-P 3339	6 026 072
WL 100-P 4239	6 028 605
WL 100-P 4339	6 028 606

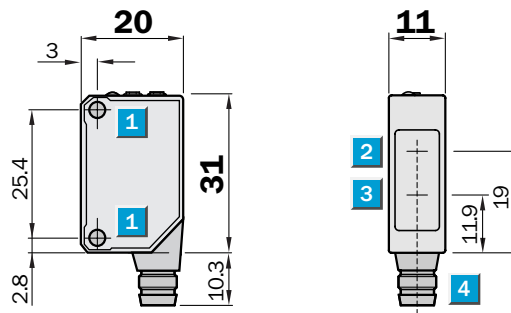
* Types without mounting brackets and reflector P 250 are also available


Scanning range
 0.01 ... 6 m

Photoelectric reflex switches

- Polarization filter and consequently reliable detection of objects with shiny surfaces too
- Also suitable for “Diamond Grade” reflective tape
- Light- or dark-switching

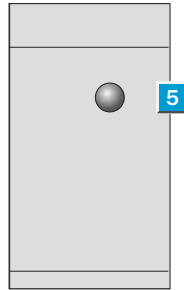
Dimensional drawing



Adjustments possible

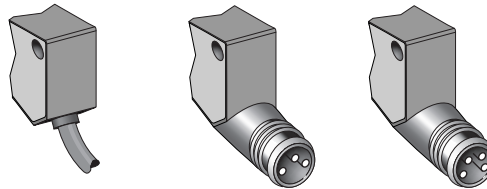
WL 100-N 1239	WL 100-N 3339
WL 100-N 1339	WL 100-N 4239
WL 100-N 3239	WL 100-N 4339

- 1 Mounting hole M3
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 Plug M8, 3-pin or cable
- 5 LED signal strength indicator orange: switching output active



Connection types

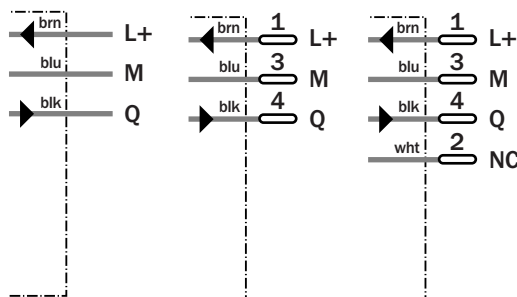
WL 100-N 1239	WL 100-N 3239	WL 100-N 4239
WL 100-N 1339	WL 100-N 3339	WL 100-N 4339



3 x 0.18 mm²

3-pin, M8

4-pin, M8



See chapter Accessories

Cables and connectors
Mounting systems
Reflectors

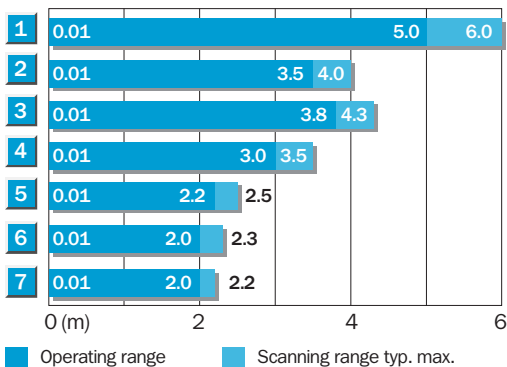
Technical data		WL 100-	N 1239	N 1339	N 3239	N 3339	N 4239	N 4339				
Scanning range, max. typ./on reflector	0.01 ... 6.0 m/PL 80 A											
	0.01 ... 4.0 m/P 250 ¹⁾											
	0.01 ... 1.5 m/P 45											
Operating range	0.01 ... 5.0 m/PL 80 A											
	0.01 ... 3.5 m/P 250											
	0.01 ... 1.2 m/P 45											
Light source²⁾, light type	LED, visible red light with polarising filter											
Light spot diameter	Approx. 250 mm at 3.5 m											
Angle of dispersion, sender	Approx. 4°											
Supply voltage V_S³⁾	10 ... 30 V DC											
Ripple ⁴⁾	± 10 %											
Current consumption ⁵⁾	≤ 30 mA											
Switching outputs	NPN, open collector: Q											
Switching mode	Light-switching											
	Dark-switching											
Output current I _A max.	100 mA											
Response time ⁶⁾	≤ 0.5 ms											
Max. switching frequency ⁷⁾	1000/s											
Connection types	cable	PVC, 2 m ⁸⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm										
	plug	M8, 3-pin										
	plug	M8, 4-pin										
VDE protection class	III											
Enclosure rating	IP 65											
Circuit protection⁹⁾	A, B, D											
Ambient temperature T_A	Operation	-25 ... +55 °C										
	Storage	-40 ... +70 °C										
Weight	with cable 2 m	Approx. 53 g										
	with plug M8	Approx. 9 g										
Housing material	Housing: ABS; Optic: PMMA											

- 1) Reflector P 250 included with delivery
- 2) Average service life 100,000 h at T_A = +25 °C
- 3) Limit values
- 4) May not exceed or fall short of V_S tolerances

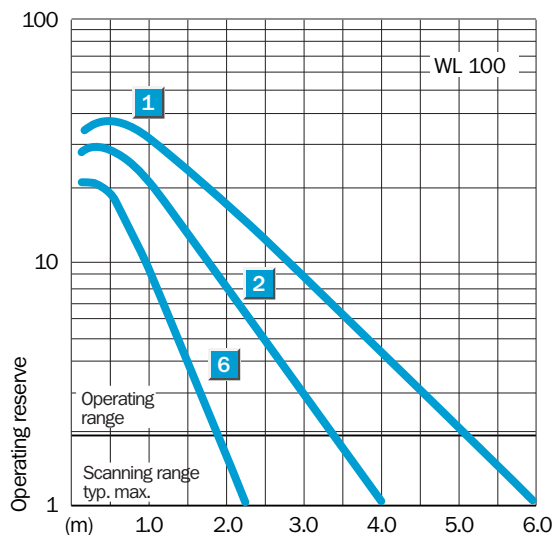
- 5) Without load
- 6) Signal transit time with resistive load
- 7) With light/dark ratio 1:1
- 8) Do not bend below 0 °C

- 9) A = V_S connections reverse-polarity protected
- B = Inputs and outputs reverse-polarity protected
- D = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve




Reflector type	Operating range
1 PL 80 A	0.01 ... 5.0 m
2 P 250	0.01 ... 3.5 m
3 PL 50 A/PL 40 A	0.01 ... 3.8 m
4 PL 30 A/PL 31 A	0.01 ... 3.0 m
5 PL 20 A	0.01 ... 2.2 m
6 Reflective tape Diamond Grade	0.01 ... 2.0 m
7 P 45	0.01 ... 2.0 m



Order information *

Type	Order no.
WL 100-N 1239	6 026 062
WL 100-N 1339	6 026 063
WL 100-N 3239	6 026 068
WL 100-N 3339	6 026 069
WL 100-N 4239	6 028 602
WL 100-N 4339	6 028 603

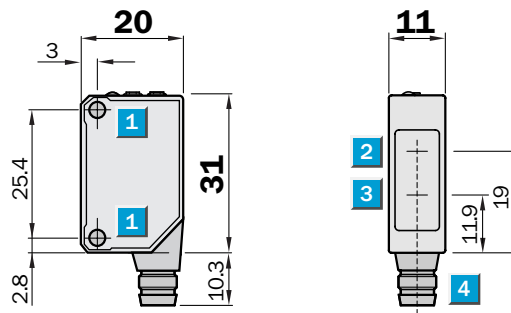
* Types without mounting brackets and reflector P 250 are also available


Scanning range
0.01 ... 3 m

Photoelectric reflex switches

- Ideal for detection of glass or transparent objects
- Detection reliability, min. attenuation 20 %, min. transmission variation 15 %
- Also suitable for “Diamond Grade” reflection tape
- Sensitivity adjustable

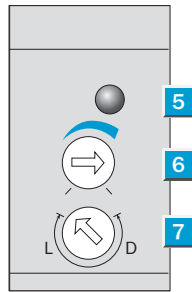
Dimensional drawing



Adjustments possible

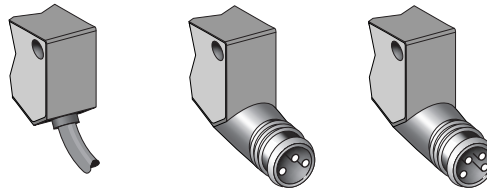
WL 100-P 1429	WL 100-N 1429
WL 100-P 3429	WL 100-N 3429
WL 100-P 4429	WL 100-N 4429

- 1** Mounting hole M3
- 2** Centre of optical axis, receiver
- 3** Centre of optical axis, sender
- 4** Plug M8, 3-pin or cable
- 5** LED signal strength indicator orange: switching output active
- 6** Sensitivity adjustment (270°)
- 7** Light/dark rotary switch: L = light-switching, D = dark-switching



Connection types

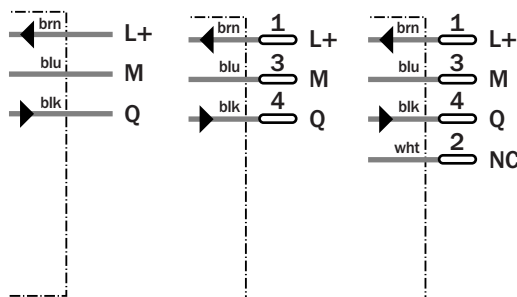
WL 100-P 1429	WL 100-P 3429	WL 100-P 4429
WL 100-N 1429	WL 100-N 3429	WL 100-N 4429



3 x 0.18 mm²

3-pin, M8

4-pin, M8



See chapter Accessories

Cables and connectors
Mounting systems
Reflectors

Technical data		WL 100-	P 1429	P 3429	P 4429	N1429	N3429	N4429				
Detection of transparent objects												
Attenuation along light beams	Min. 20 %											
Attenuation difference	Min. 15 %											
Sensitivity, adjustable	Potentiometer, 270°											
Scanning range, max. typ./on Reflector	0.01 ... 3.0 m/PL 80 A											
	0.01 ... 2.4 m/P 250 4)											
	0.01 ... 0.8 m/P 45											
Operating range	0.01 ... 2.6 m/PL 80 A											
	0.01 ... 2 m/P 250											
	0.01 ... 0.7 m/P 45											
Light source 2), light type	LED, visible red light											
Light spot diameter	Approx. 200 mm at 2 m											
Angle of dispersion, sender	Approx. 4°											
Supply voltage V_S 3)	10 ... 30 V DC											
Ripple 4)	± 10 %											
Current consumption 5)	≤ 30 mA											
Switching outputs	PNP, open collector: Q											
	NPN, open collector: Q											
Switching mode, adjustable	Light-/dark-switching via rotary switch 6)											
Output current I _A max.	100 mA											
Response time 7)	≤ 0.5 ms											
Max. switching frequency 8)	1000/s											
Connection types	cable	PVC, 2 m 9); 3 x 0.18 mm ² , Ø 3.8 mm										
	plug	M8, 3-pin										
	plug	M8, 4-pin										
VDE protection class	III											
Enclosure rating	IP 65											
Circuit protection 10)	A, B, D											
Ambient temperature T_A	Operation	-25 ... +55 °C										
	Storage	-40 ... +70 °C										
Weight	with cable 2 m	Approx. 53 g										
	with plug M8	Approx. 9 g										
Housing material	Housing: ABS; Optic: PMMA											

1) Reflector P 250 included with delivery

2) Average service life 100,000 h at T_A = +25 °C

3) Limit values

4) May not exceed or fall short of V_S tolerances

5) Without load

6) L = light-switching, D = dark-switching

7) Signal transit time with resistive load

8) With light/dark ratio 1:1

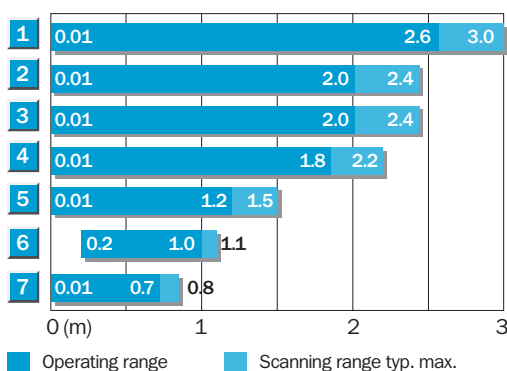
9) Do not bend below 0 °C

10) A = V_S connections reverse-polarity protected

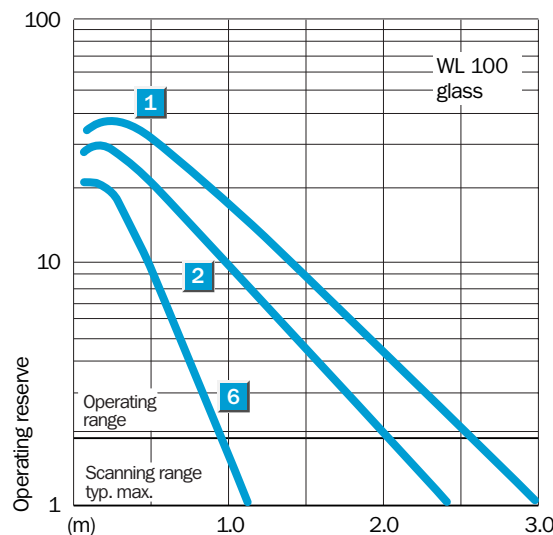
B = Inputs and outputs reverse-polarity protected

D = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve



Reflector type	Operating range
1 PL 80 A	0.01 ... 2.6 m
2 P 250	0.01 ... 2 m
3 PL 50 A/PL 40 A	0.01 ... 2 m
4 PL 30 A/PL 31 A	0.01 ... 1.8 m
5 PL 20 A	0.01 ... 1.2 m
6 Reflective tape Diamond Grade	0.2 ... 1.0 m
7 P 45	0.01 ... 0.7 m



Order information *

Type	Order no.
WL 100-P 1429	6 027 662
WL 100-P 3429	6 027 664
WL 100-P 4429	6 028 661
WL 100-N 1429	6 027 661
WL 100-N 3429	6 027 663
WL 100-N 4429	6 028 610

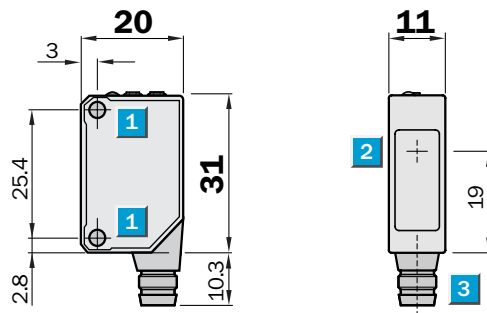
* Types without mounting brackets and reflector P 250 are also available

Scanning range
15 m

Through-beam photoelectric switches

- Slotted masks for detecting small parts or for positioning jobs
- Sensitivity adjustable

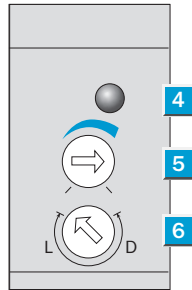
Dimensional drawing



Adjustments possible

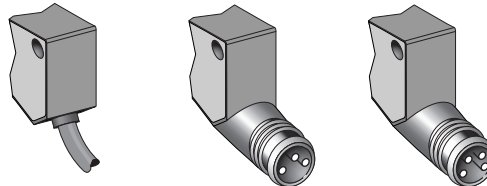
WS/WE 100-P 1439	WS/WE 100-N 1439
WS/WE 100-P 3439	WS/WE 100-N 3439
WS/WE 100-P 4439	WS/WE 100-N 4439

- 1** Mounting hole for M3
- 2** Centre of optical axis, sender WS 100
- 2** Centre of optical axis, receiver WE 100
- 3** Plug M8, 3-pin or cable
- 4** LED signal strength indicator orange: switching output active
- 5** Sensitivity adjustment (270°, WE 100)
- 6** Light/dark rotary switch: L = light-switching, D = dark-switching (WE 100)

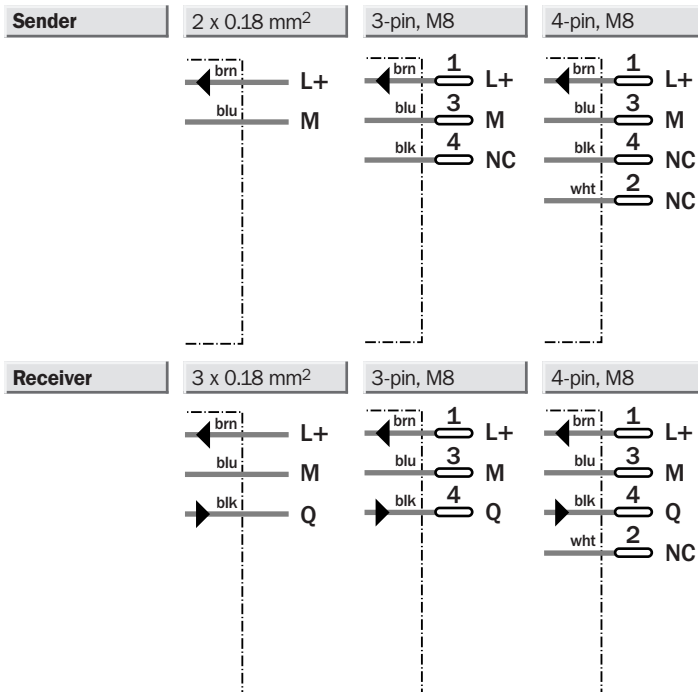


Connection types

WS/WE 100-P 1439	WS/WE 100-P 3439	WS/WE 100-P 4439
WS/WE 100-N 1439	WS/WE 100-N 3439	WS/WE 100-N 4439



See chapter Accessories
Cables and connectors
Mounting systems



Technical data		WS/WE 100-	P 1439	P 3439	P 4439	N1439	N3439	N4439				
Scanning range, max. typical	15 m											
Operating range	12 m											
Operating range with mask 2.0 m	4.0 m											
Operating range with mask 1.0 m	2.0 m											
Operating range with mask 0.5 m	1.0 m											
Sensitivity, adjustable	Potentiometer, 270°											
Light source ¹⁾, light type	LED, visible red light											
Light spot diameter	Approx. 650 mm at 12 m											
Angle of dispersion, sender	Approx 3.1°											
Receiver reception angle	Approx. 15°											
Supply voltage V_S ²⁾	10 ... 30 V DC											
Ripple ³⁾	± 10 %											
Current consumption ⁴⁾ sender/receiver	≤ 15 mA/≤ 20 mA											
Switching outputs	PNP, open collector: Q NPN, open collector: Q											
Switching mode, adjustable (WE 100)	Light-/dark-switching via rotary switch ⁵⁾											
Output current I_A max.	100 mA											
Response time ⁶⁾	≤ 0.5 ms											
Max. switching frequency ⁷⁾	1000/s											
Connection types												
cable WS 100	PVC, 2 m ⁸⁾ ; 2 x 0.18 mm ² , Ø 3.8 mm											
cable WE 100	PVC, 2 m ⁸⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm											
plug	M8, 3-pin											
plug	M8, 4-pin											
VDE protection class	III											
Enclosure rating	IP 65											
Circuit protection ⁹⁾	WS 100 A WE 100 A, B, D											
Ambient temperature T_A	Operation -25 ... +55 °C Storage -40 ... +70 °C											
Weight	with cable 2 m Sender/receiver each approx. 53 g with plug M8 Sender/receiver each approx. 9 g											
Housing material	Housing: ABS; Optic: PC											

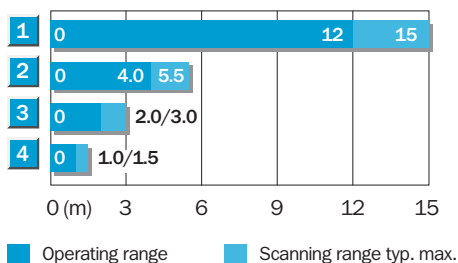
1) Average service life 100,000 h at $T_A = +25 °C$
 2) Limit values
 3) May not exceed or fall short of V_S tolerances

4) Without load
 5) L = light-switching, D = dark-switching
 6) Signal transit time with resistive load
 7) With light/dark ratio 1:1
 8) Do not bend below 0 °C

9) A = V_S connections reverse-polarity protected
 B = Inputs and outputs reverse-polarity protected
 D = Outputs overcurrent and short-circuit protected

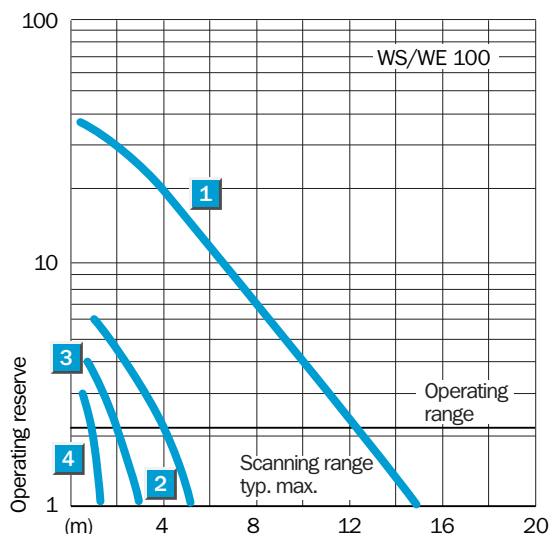
10) The order no. contains transmitter and receiver

Scanning range and operating reserve



Scanning range reduction when slotted masks are used

1	Without masks
2	With slotted mask, width 2.0 mm
3	With slotted mask, width 1.0 mm
4	With slotted mask, width 0.5 mm



Order information *

Type	Order no. ¹⁰⁾
WS/WE 100-P 1439	6 026 043
WS/WE 100-P 3439	6 026 049
WS/WE 100-P 4439	6 028 595
WS/WE 100-N 1439	6 026 040
WS/WE 100-N 3439	6 026 046
WS/WE 100-N 4439	6 028 592

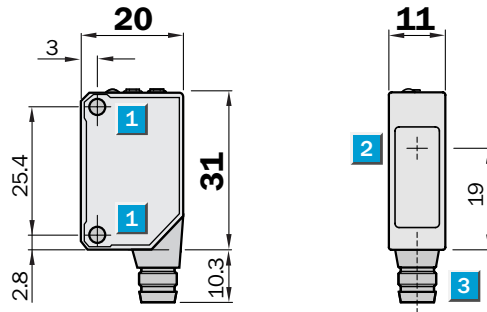
* Types without mounting brackets are also available

Scanning range
15 m

Through-beam photoelectric switches

- Slotted masks for detecting small parts or for positioning jobs

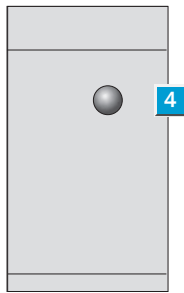
Dimensional drawing



Adjustments possible

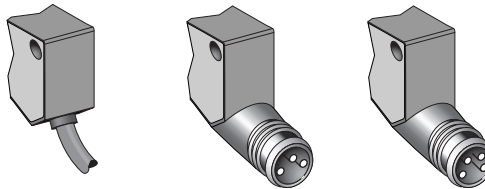
WS/WE 100-P 1239	WS/WE 100-P 3339
WS/WE 100-P 1339	WS/WE 100-P 4239
WS/WE 100-P 3239	WS/WE 100-P 4339

- 1 Mounting hole for M3
- 2 Centre of optical axis, sender WS 100
- Centre of optical axis, receiver WE 100
- 3 Plug M8, 3-pin or cable
- 4 LED signal strength indicator orange: switching output active

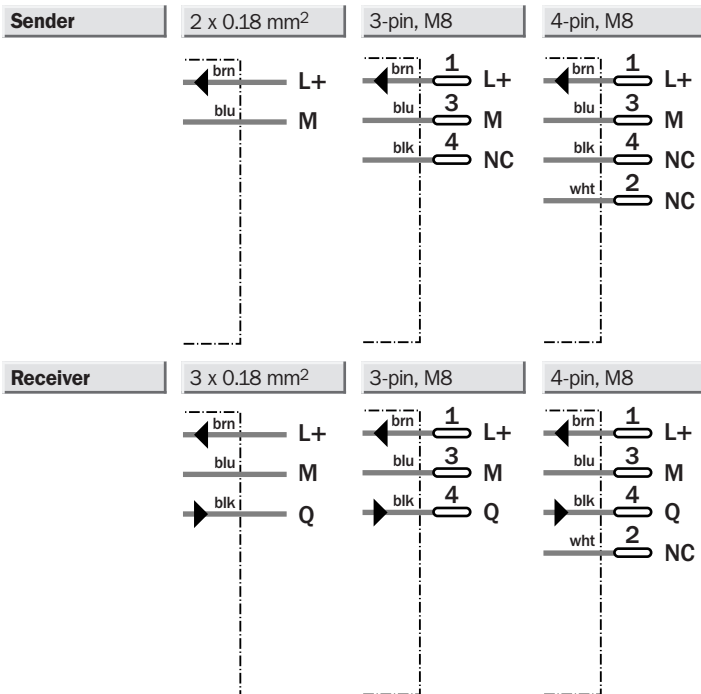


Connection types

WS/WE 100-P 1239	WS/WE 100-P 3239	WS/WE 100-P 4239
WS/WE 100-P 1339	WS/WE 100-P 3339	WS/WE 100-P 4339



See chapter Accessories
Cables and connectors
Mounting systems



Technical data		WS/WE 100-	P 1239	P 1339	P 3239	P 3339	P 4239	P 4339				
Scanning range, typ. max.		15 m										
Operating range		12 m										
Operating range with mask 2.0 m		4.0 m										
Operating range with mask 1.0 m		2.0 m										
Operating range with mask 0.5 m		1.0 m										
Light source ¹⁾, light type		LED, visible red light										
Light spot diameter		Approx. 650 mm at 12 m										
Angle of dispersion, sender		Approx. 3.1°										
Receiver reception angle		Approx. 15°										
Supply voltage V_S²⁾		10 ... 30 V DC										
Ripple ³⁾		± 10 %										
Current consumption ⁴⁾ sender/receiver		≤ 15 mA/≤ 20 mA										
Switching outputs		PNP, open collector: Q										
Switching mode (WE 100)		Light-switching										
		Dark-switching										
Output current I_A max.		100 mA										
Response time ⁵⁾		≤ 0.5 ms										
Max. switching frequency ⁶⁾		1000/s										
Connection types	cable WS 100	PVC, 2 m ⁷⁾ ; 2 x 0.18 mm ² , Ø 3.8 mm										
	cable WE 100	PVC, 2 m ⁷⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm										
	plug	M8, 3-pin										
	plug	M8, 4-pin										
VDE protection class		III										
Enclosure rating		IP 65										
Circuit protection ⁸⁾	WS 100	A										
	WE 100	A, B, D										
Ambient temperature T_A		Operation -25 ... +55 °C										
		Storage -40 ... +70 °C										
Weight	with cable 2 m	Sender/receiver each approx. 53 g										
	with plug M8	Sender/receiver each approx. 9 g										
Housing material		Housing: ABS; Optic: PC										

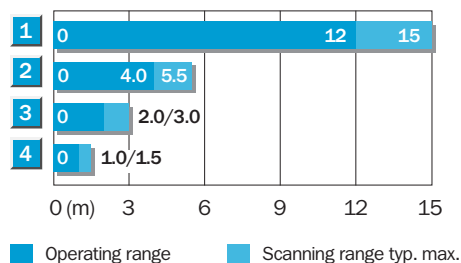
¹⁾ Average service life 100,000 h at $T_A = +25 °C$
²⁾ Limit values
³⁾ May not exceed or fall short of V_S tolerances

⁴⁾ Without load
⁵⁾ Signal transit time with resistive load
⁶⁾ With light/dark ratio 1:1
⁷⁾ Do not bend below 0 °C

⁸⁾ A = V_S connections reverse-polarity protected
 B = Inputs and outputs reverse-polarity protected
 D = Outputs overcurrent and short-circuit protected

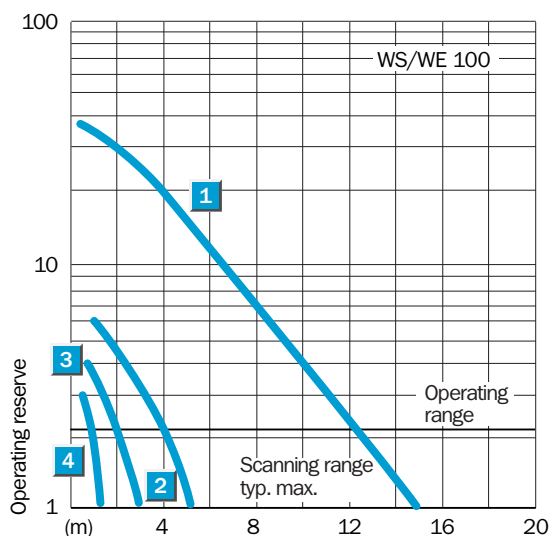
⁹⁾ The order no. contains sender and receiver

Scanning range and operating reserve



Scanning range reduction when slotted masks are used

1	Without masks
2	With slotted mask, width 2.0 mm
3	With slotted mask, width 1.0 mm
4	With slotted mask, width 0.5 mm



Order information *

Type	Order no. ⁹⁾
WS/WE 100-P 1239	6 026 041
WS/WE 100-P 1339	6 026 042
WS/WE 100-P 3239	6 026 047
WS/WE 100-P 3339	6 026 048
WS/WE 100-P 4239	6 028 593
WS/WE 100-P 4339	6 028 594

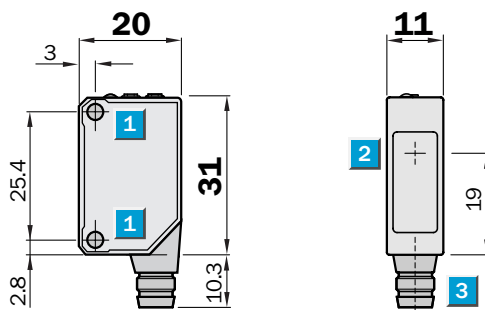
* Types without mounting brackets are also available

Scanning range
15 m

Through-beam photoelectric switches

- Slotted masks for detecting small parts or for positioning jobs

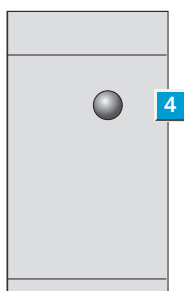
Dimensional drawing



Adjustments possible

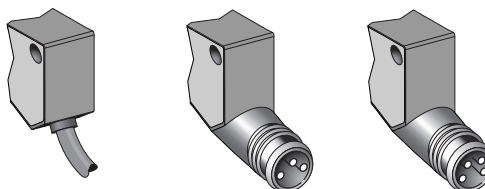
WS/WE 100-N 1239	WS/WE 100-N 3339
WS/WE 100-N 1339	WS/WE 100-N 4239
WS/WE 100-N 3239	WS/WE 100-N 4339

- 1** Mounting hole for M3
- 2** Centre of optical axis, sender WS 100
- Centre of optical axis, receiver WE 100
- 3** Plug M8, 3-pin or cable
- 4** LED signal strength indicator orange: switching output active

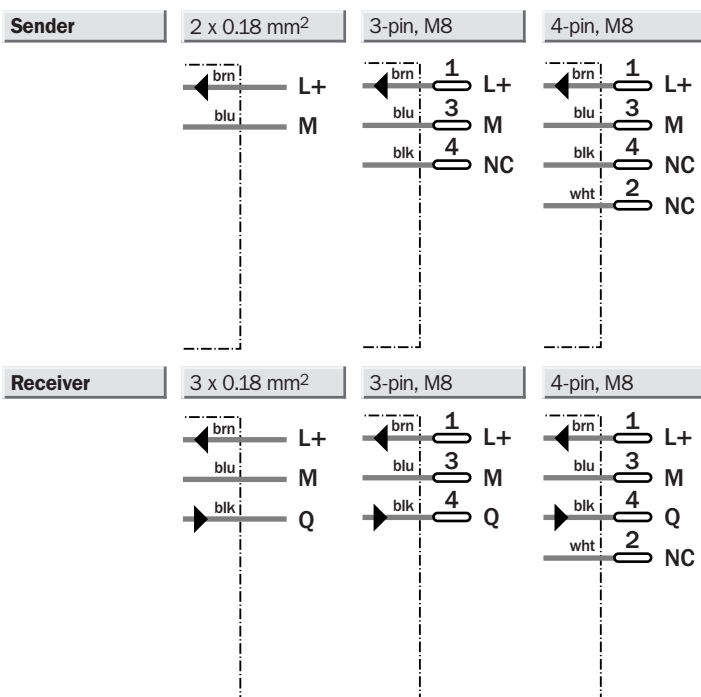


Connection types

WS/WE 100-N 1239	WS/WE 100-N 3239	WS/WE 100-N 4239
WS/WE 100-N 1339	WS/WE 100-N 3339	WS/WE 100-N 4339



See chapter Accessories
Cables and connectors
Mounting systems



Technical data		WS/WE 100-	N 1239	N 1339	N 3239	N 3339	N 4239	N 4339				
Scanning range, typ. max.		15 m										
Operating range		12 m										
Operating range with mask 2.0 m		4.0 m										
Operating range with mask 1.0 m		2.0 m										
Operating range with mask 0.5 m		1.0 m										
Light source ¹⁾, light type		LED, visible red light										
Light spot diameter		Approx. 650 mm at 12 m										
Angle of dispersion, sender		Approx. 3.1°										
Receiver reception angle		Approx. 15°										
Supply voltage V_S²⁾		10 ... 30 V DC										
Ripple ³⁾		± 10 %										
Current consumption ⁴⁾ sender/receiver		≤ 15 mA/≤ 20 mA										
Switching outputs		NPN, open collector: Q										
Switching mode (WE 100)		Light-switching										
		Dark-switching										
Output current I_A max.		100 mA										
Response time ⁵⁾		≤ 0.5 ms										
Max. switching frequency ⁶⁾		1000/s										
Connection types												
cable WS 100		PVC, 2 m ⁷⁾ ; 2 x 0.18 mm ² , Ø 3.8 mm										
cable WE 100		PVC, 2 m ⁷⁾ ; 3 x 0.18 mm ² , Ø 3.8 mm										
plug		M8, 3-pin										
plug		M8, 4-pin										
VDE protection class		III										
Enclosure rating		IP 65										
Circuit protection ⁸⁾												
WS 100		A										
WE 100		A, B, D										
Ambient temperature T_A												
		Operation -25 ... +55 °C										
		Storage -40 ... +70 °C										
Weight												
with cable 2 m		Sender/receiver each approx. 53 g										
with plug M8		Sender/receiver each approx. 9 g										
Housing material		Housing: ABS; Optic: PC										

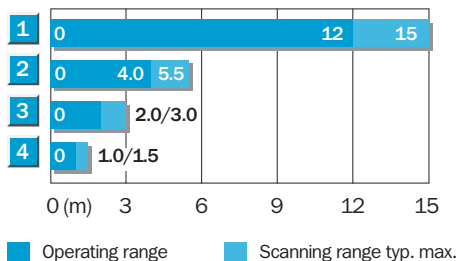
¹⁾ Average service life 100,000 h at $T_A = +25 °C$
²⁾ Limit values
³⁾ May not exceed or fall short of V_S tolerances

⁴⁾ Without load
⁵⁾ Signal transit time with resistive load
⁶⁾ With light/dark ratio 1:1
⁷⁾ Do not bend below 0 °C

⁸⁾ A = V_S connections reverse-polarity protected
 B = Inputs and outputs reverse-polarity protected
 D = Outputs overcurrent and short-circuit protected

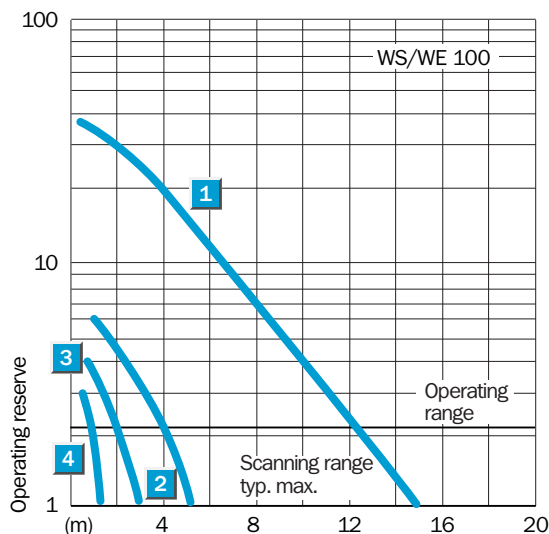
⁹⁾ The order no. contains sender and receiver

Scanning range and operating reserve



Scanning range reduction when slotted masks are used

1	Without masks
2	With slotted mask, width 2.0 mm
3	With slotted mask, width 1.0 mm
4	With slotted mask, width 0.5 mm



Order information *

Type	Order no. ⁹⁾
WS/WE 100-N 1239	6 026 038
WS/WE 100-N 1339	6 026 039
WS/WE 100-N 3239	6 026 044
WS/WE 100-N 3339	6 026 045
WS/WE 100-N 4239	6 028 590
WS/WE 100-N 4339	6 028 591

* Types without mounting brackets are also available