W 100: Miniature photoelectric switch series with large scanning ranges

DATA SHEET

	Photoelectric proximity switches, BGB
	Photoelectric proximity switches, energetic
	Photoelectric reflex switches
	Through-beam photoelectric switches

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),
- 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 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.

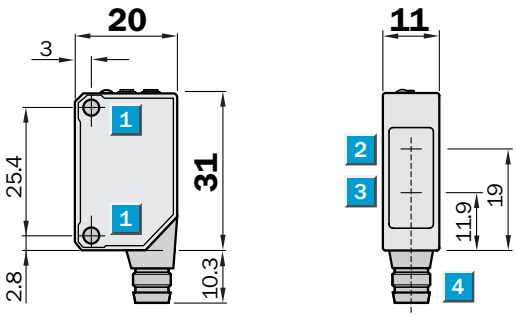
SICK

Scanning distance
4 ... 120 mm

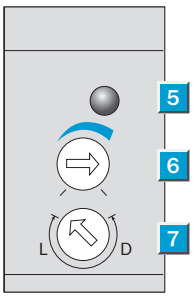
Photoelectric proximity switches

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

Dimensional drawing



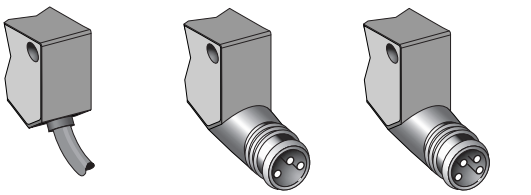
Adjustments possible	
WT 100-P 1419	WT 100-N 1419
WT 100-P 3419	WT 100-N 3419
WT 100-P 4419	WT 100-N 4419



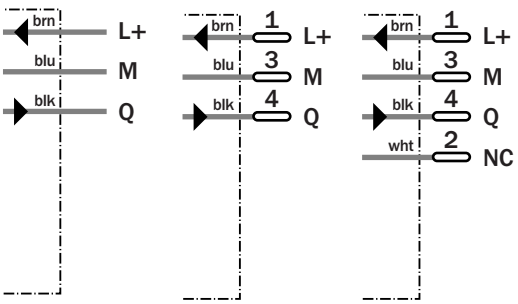
1 Mounting hole M3
2 Centre of optical axis, receiver
3 Centre of optical axis, sender
4 Plug M8, 3-pin or cable
5 LED signal strength indicator orange: switching output active
6 Sensitivity adjustment (270°)
7 Light/dark rotary switch: L = light-switching, D = dark-switching

Connection types

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



3 x 0.18 mm²	3-pin, M8	4-pin, M8

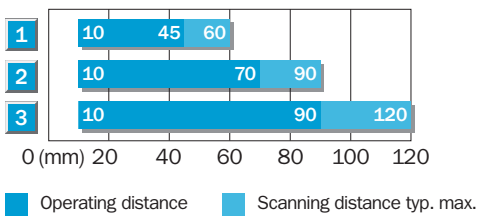


Accessories
Connectors
Mounting systems

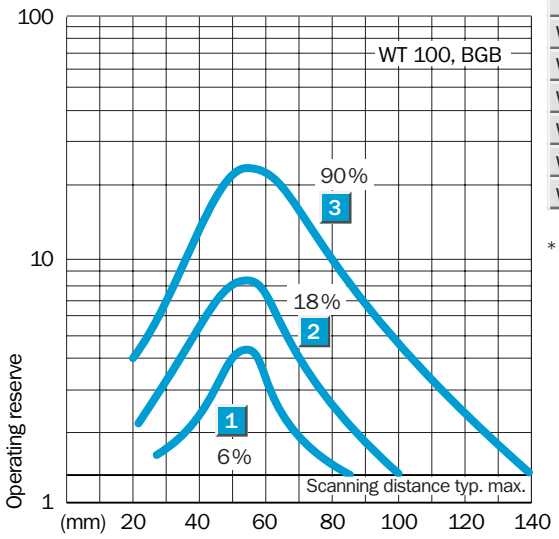
Technical data		WT 100-	P 1419	P 3419	P 4419	N 1419	N 3419	N 4419
Scanning distance, max. typical		4 ... 120 mm [1]	■	■	■	■	■	■
Operating distance		10 ... 90 mm [1]	■	■	■	■	■	■
Background blanking		From approx. 140 mm [2]	■	■	■	■	■	■
Sensitivity, adjustable		Potentiometer, 270°	■	■	■	■	■	■
Light source [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 mm², 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	Part 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

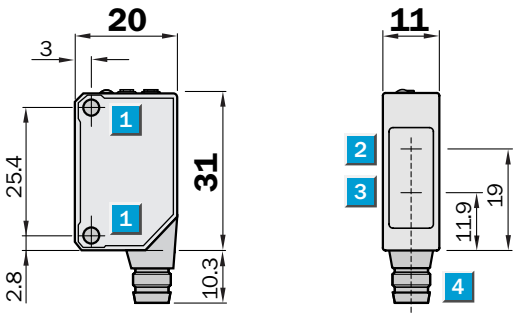
* Types without mounting brackets are also available

Scanning distance
0 ... 900 mm

Photoelectric proximity switches

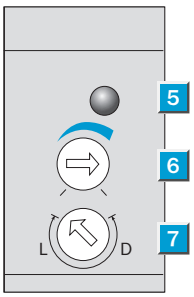
- Energetic photoelectric proximity switches – for standard applications
- Switching point adjustable

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



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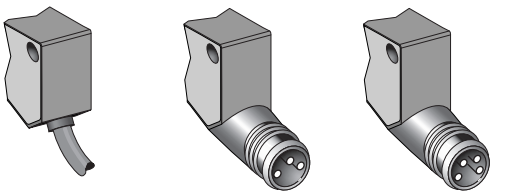
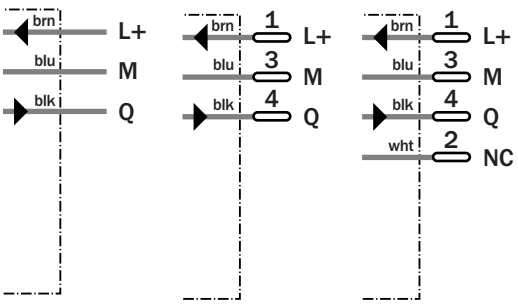
5 LED signal strength indicator orange: switching output active
6 Sensitivity adjustment (270°)
7 Light/dark rotary switch: L = light-switching, D = dark-switching

Connection types

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



3 x 0.18 mm²	3-pin, M8	4-pin, M8

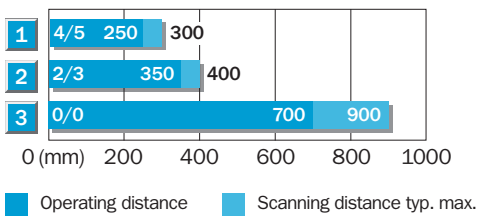


Accessories
Connectors
Mounting systems

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 mm², 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



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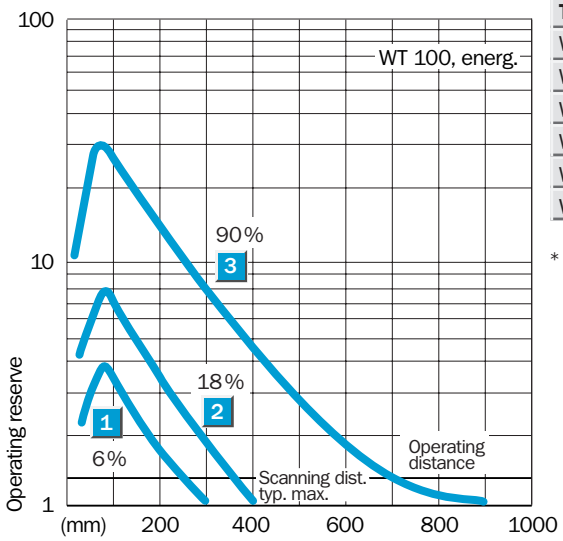
2	Scanning range on grey, 18 % remission
3	Scanning range on white, 90 % remission



Order information *

Type	Part 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

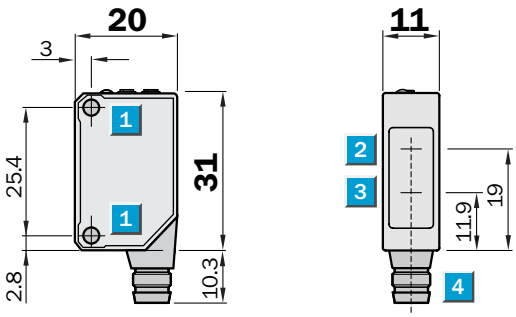
* Types without mounting brackets are also available

Scanning range
0.01 ... 6 m

Photoelectric reflex switches

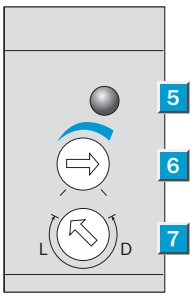
- Polarization filter and consequently reliable detection of objects with shiny surfaces too
- Also suitable for “Diamond Grade” reflective tape
- Sensitivity adjustable

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



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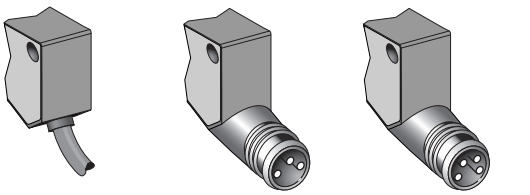
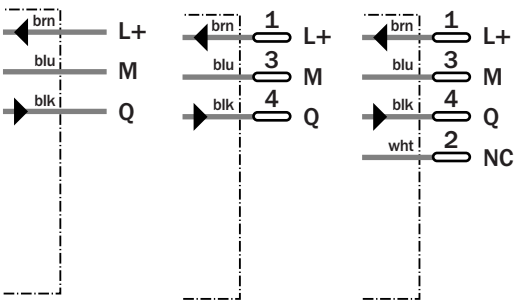
Connection types

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

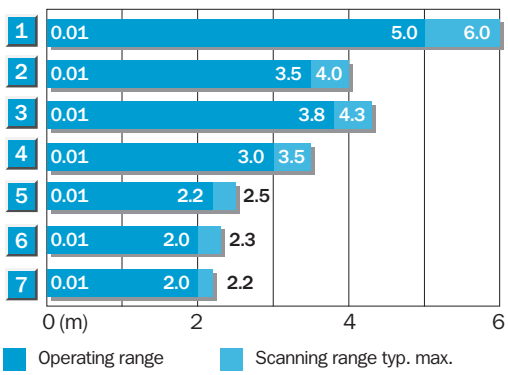


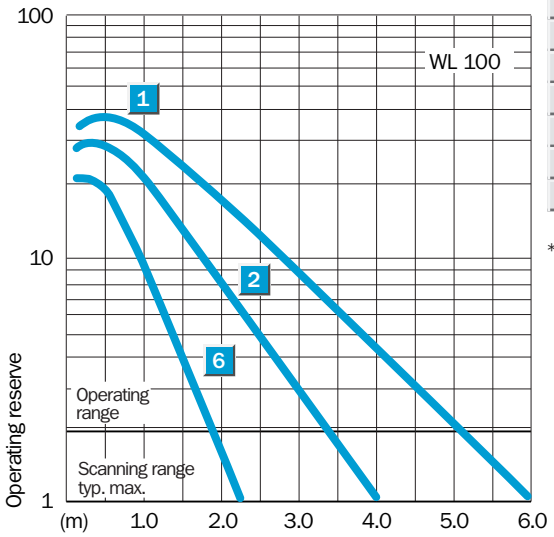
Accessories
Connectors
Mounting systems
Reflectors

Technical data		WL 100-	P 1439	P 3439	P 4439	N 1439	N 3439	N 4439
Scanning range, max. typ./on reflector		0.01 ... 6.0 m/PL 80 A	■	■	■	■	■	■
		0.01 ... 4.0 m/P 250 [1]	■	■	■	■	■	■
		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 source [2], 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_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 mm², 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 ... 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	Part 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

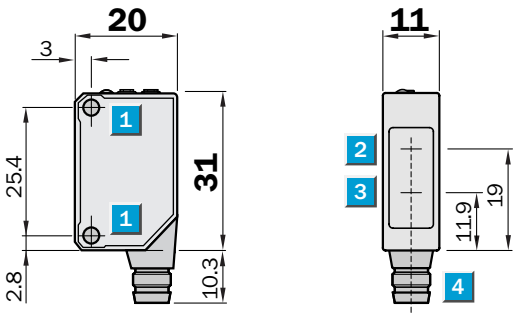
* Types without mounting brackets and reflector P 250 are also available

Scanning range
0.01 ... 6 m

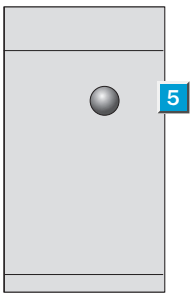
Photoelectric reflex switches

- 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



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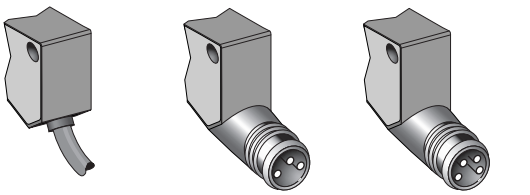
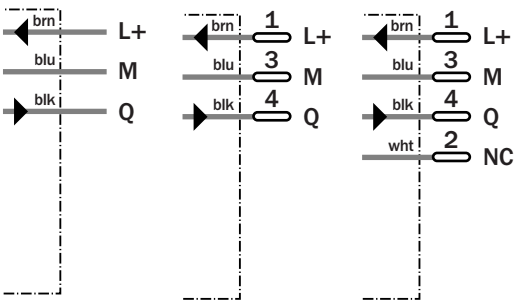
4 Plug M8, 3-pin or cable
5 LED signal strength indicator orange: switching output active

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

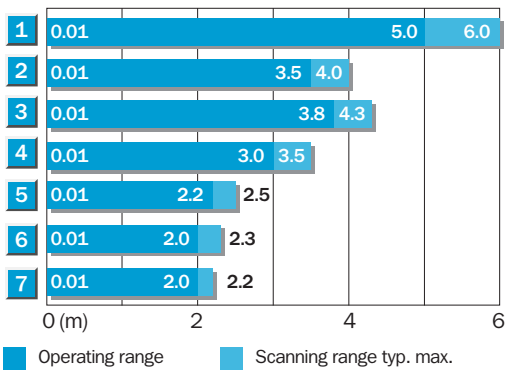


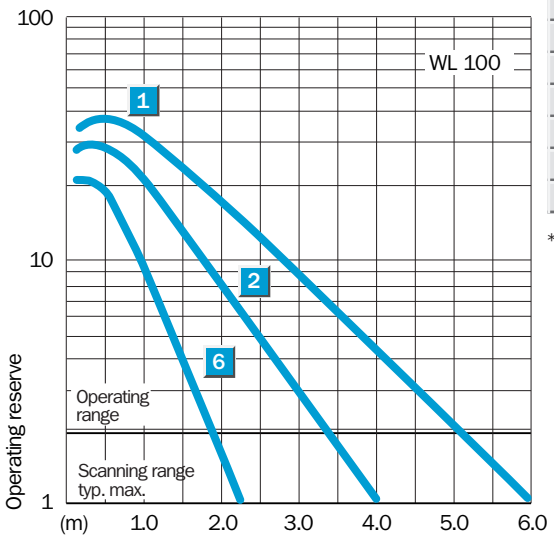
Accessories
Connectors
Mounting systems
Reflectors

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 source [2], 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_S [3]		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 mm², Ø 3.8 mm	■	■				
	plug	M8, 3-pin			■	■		
	plug	M8, 4-pin					■	■
VDE protection class		III	■	■	■	■	■	■
Enclosure rating		IP 65	■	■	■	■	■	■
Circuit protection [9]		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	Part 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

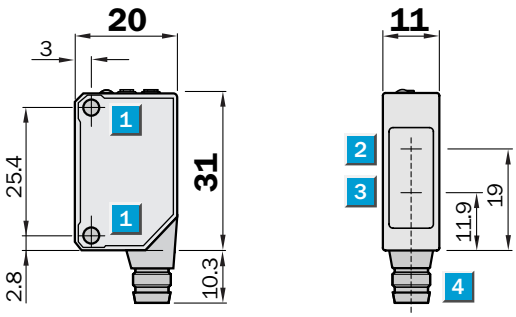
* Types without mounting brackets and reflector P 250 are also available

Scanning range
0.01 ... 6 m

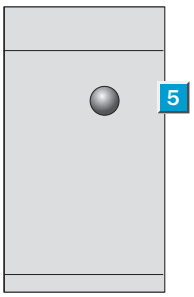
Photoelectric reflex switches

- 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



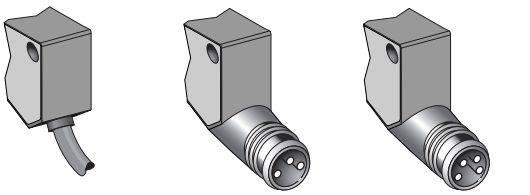
Adjustments possible	
WL 100-N 1239	WL 100-N 3339
WL 100-N 1339	WL 100-N 4239
WL 100-N 3239	WL 100-N 4339



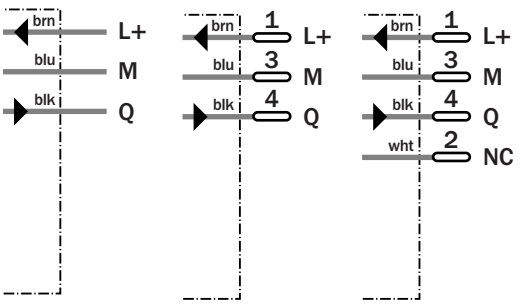
1 Mounting hole M3
2 Centre of optical axis, receiver
3 Centre of optical axis, sender
4 Plug M8, 3-pin or cable
5 LED signal strength indicator orange: switching output active

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

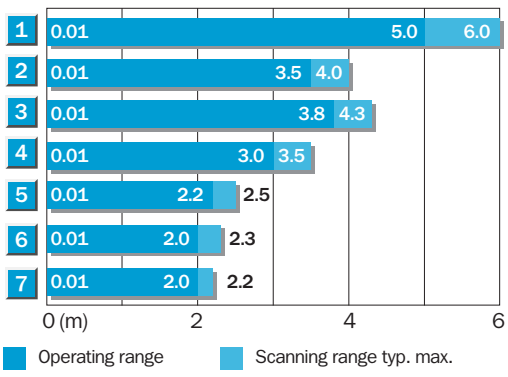


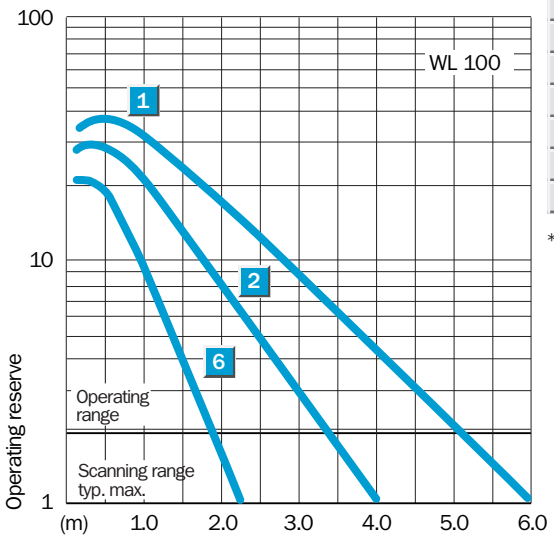
Accessories
Connectors
Mounting systems
Reflectors

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 source [2], 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_S [3]		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 mm², Ø 3.8 mm	■	■				
	plug	M8, 3-pin			■	■		
	plug	M8, 4-pin					■	■
VDE protection class		III	■	■	■	■	■	■
Enclosure rating		IP 65	■	■	■	■	■	■
Circuit protection [9]		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	Part 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

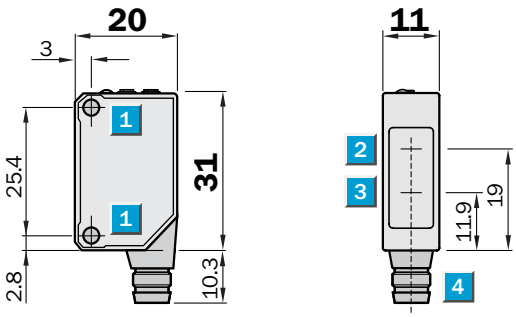
* Types without mounting brackets and reflector P 250 are also available

Scanning range
0.01 ... 3 m

Photoelectric reflex switches

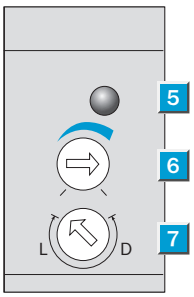
- Ideal for detection of glass or transparent objects
- Detection reliability, min. attenuation 20 %, min. transmission variation 15 %
- Also suitable for “Diamond Grade” reflection tape
- Sensitivity adjustable

Dimensional drawing



Adjustments possible

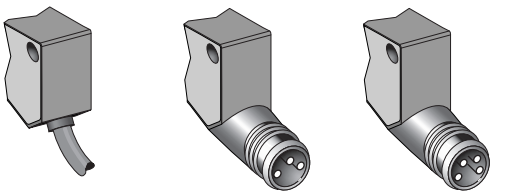
WL 100-P 1429	WL 100-N 1429
WL 100-P 3429	WL 100-N 3429
WL 100-P 4429	WL 100-N 4429



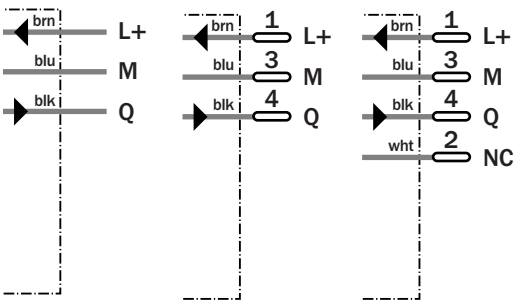
1 Mounting hole M3
2 Centre of optical axis, receiver
3 Centre of optical axis, sender
4 Plug M8, 3-pin or cable
5 LED signal strength indicator orange: switching output active
6 Sensitivity adjustment (270°)
7 Light/dark rotary switch: L = light-switching, D = dark-switching

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



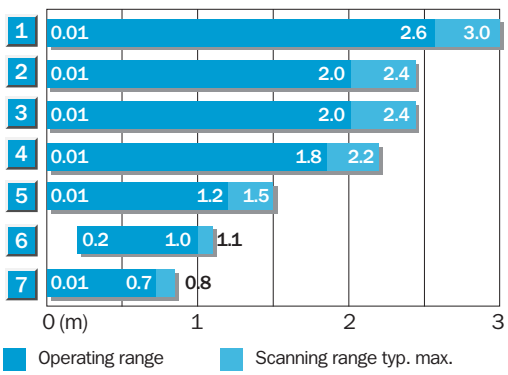
Accessories

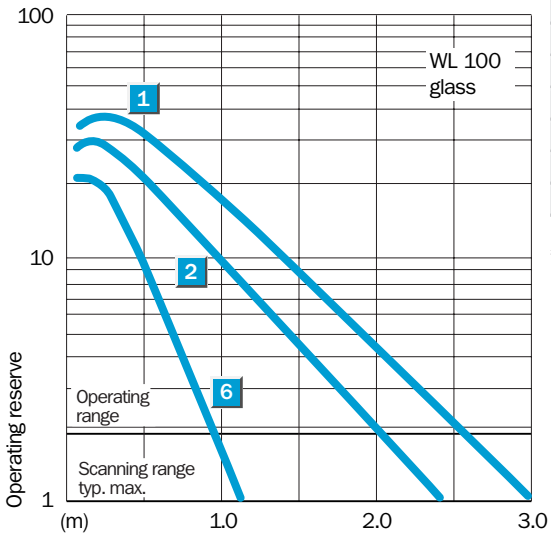
Connectors
Mounting systems
Reflectors

Technical data		WL 100-	P 1429	P 3429	P 4429	N 1429	N 3429	N 4429
Detection of transparent objects								
Attenuation along light beans		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 [1]	■	■	■	■	■	■
		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 mm², 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	Part 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

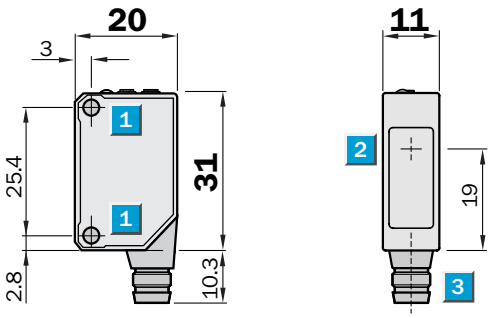
* Types without mounting brackets and reflector P 250 are also available

Scanning range 15 m

Through-beam photoelectric switches

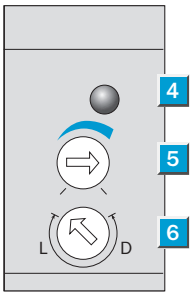
- Slotted masks for detecting small parts or for positioning jobs
- Sensitivity adjustable

Dimensional drawing



Adjustments possible

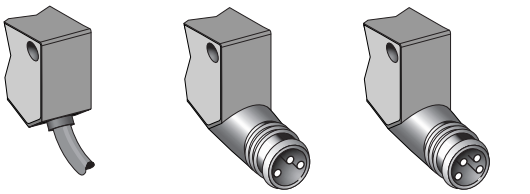
WS/WE 100-P 1439	WS/WE 100-N 1439
WS/WE 100-P 3439	WS/WE 100-N 3439
WS/WE 100-P 4439	WS/WE 100-N 4439



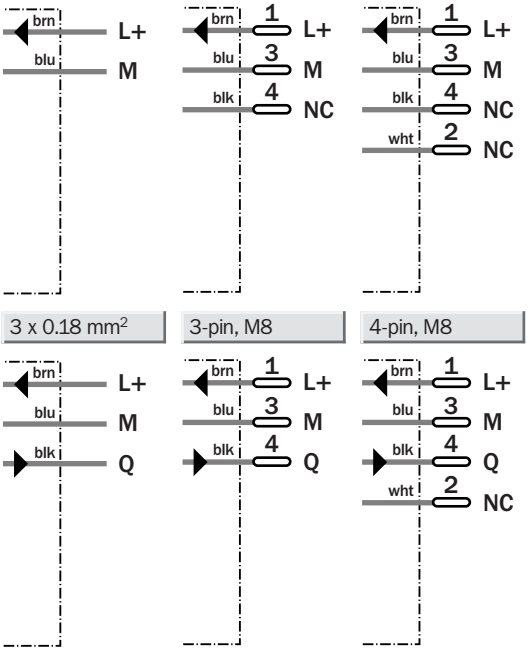
1 Mounting hole for M3
2 Centre of optical axis, sender WS 100
Centre of optical axis, receiver WE 100
3 Plug M8, 3-pin or cable
4 LED signal strength indicator orange: switching output active
5 Sensitivity adjustment (270°, WE 100)
6 Light/dark rotary switch: L = light-switching, D = dark-switching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



Sender	2 x 0.18 mm²	3-pin, M8	4-pin, M8
Receiver	3 x 0.18 mm²	3-pin, M8	4-pin, M8



Accessories

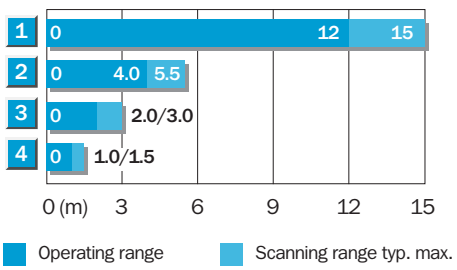
Connectors

Mounting systems

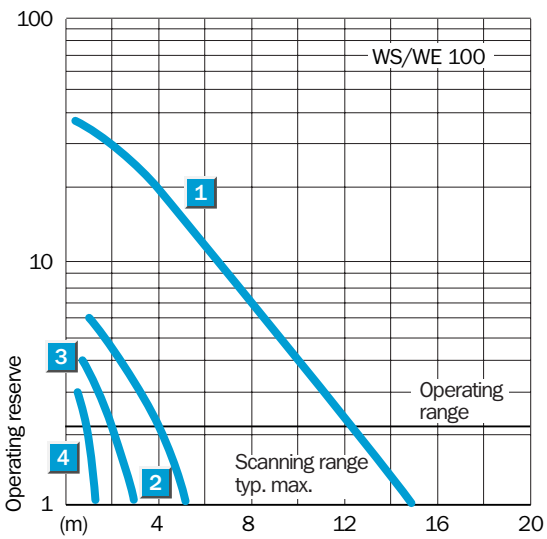
Technical data		WS/WE 100-	P 1439	P 3439	P 4439	N 1439	N 3439	N 4439
Scanning range, max. typical		15 m	■	■	■	■	■	■
Operating range		12 m	■	■	■	■	■	■
Operating range with mask 2.0 m		4.0 m	■	■	■	■	■	■
Operating range with mask 1.0 m		2.0 m	■	■	■	■	■	■
Operating range with mask 0.5 m		1.0 m	■	■	■	■	■	■
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 mm², Ø 3.8 mm	■			■		
	cable WE 100	PVC, 2 m [8]; 3 x 0.18 mm², 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/reveiver 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 part 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	Part 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

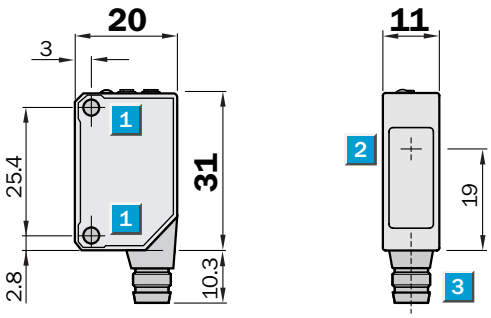
* Types without mounting brackets are also available

Scanning range 15 m

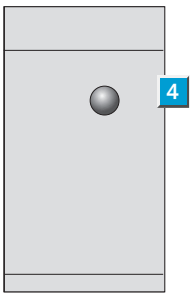
Through-beam photoelectric switches

- Slotted masks for detecting small parts or for positioning jobs

Dimensional drawing

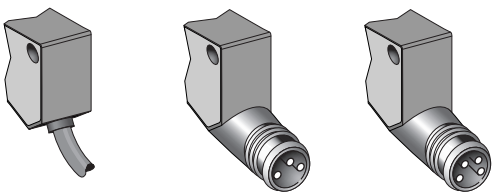


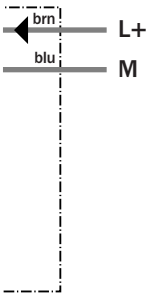
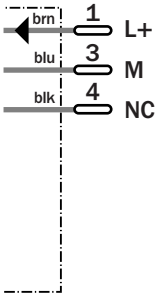
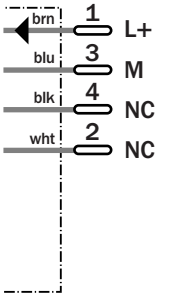
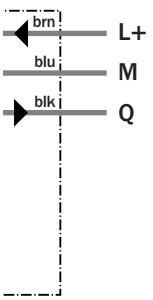
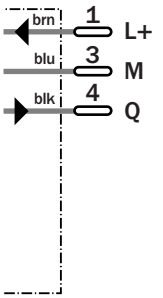
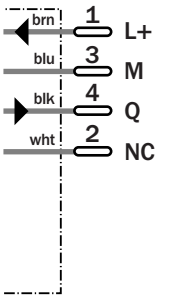
Adjustments possible	
WS/WE 100-P 1239	WS/WE 100-P 3339
WS/WE 100-P 1339	WS/WE 100-P 4239
WS/WE 100-P 3239	WS/WE 100-P 4339



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



	2 x 0.18 mm²	3-pin, M8	4-pin, M8
Sender			
Receiver			

Accessories

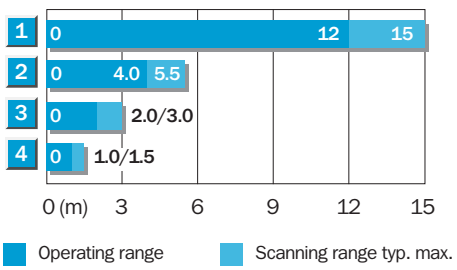
Connectors

Mounting systems

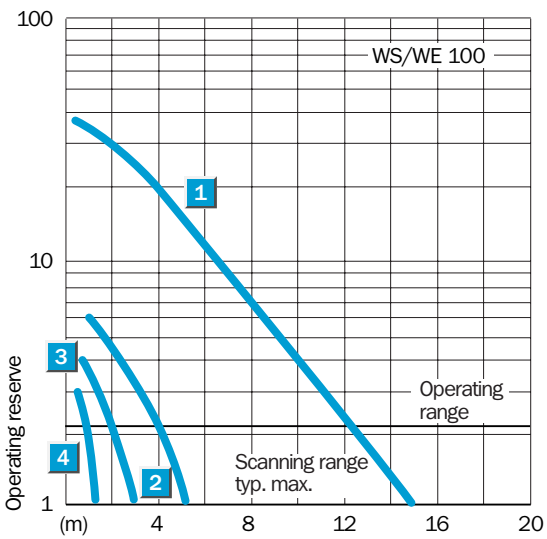
Technical data		WS/WE 100-	P 1239	P 1339	P 3239	P 3339	P 4239	P 4339
Scanning range, typ. max.		15 m	■	■	■	■	■	■
Operating range		12 m	■	■	■	■	■	■
Operating range with mask 2.0 m		4.0 m	■	■	■	■	■	■
Operating range with mask 1.0 m		2.0 m	■	■	■	■	■	■
Operating range with mask 0.5 m		1.0 m	■	■	■	■	■	■
Light 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_S [2]		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 mm², Ø 3.8 mm	■	■				
	cable WE 100	PVC, 2 m [7]; 3 x 0.18 mm², 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 part 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	Part 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

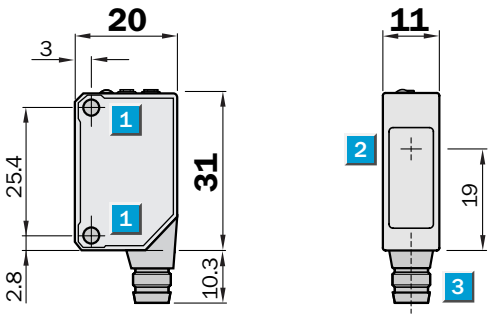
* Types without mounting brackets are also available

Scanning range 15 m

Through-beam photoelectric switches

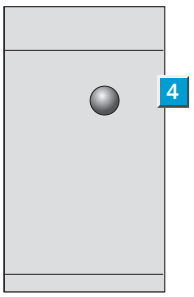
- Slotted masks for detecting small parts or for positioning jobs

Dimensional drawing



Adjustments possible

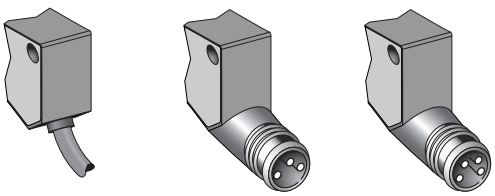
WS/WE 100-N 1239	WS/WE 100-N 3339
WS/WE 100-N 1339	WS/WE 100-N 4239
WS/WE 100-N 3239	WS/WE 100-N 4339



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



Sender	2 x 0.18 mm²	3-pin, M8	4-pin, M8
	brn L+	brn 1 L+	brn 1 L+
	blu M	blu 3 M	blu 3 M
		blk 4 NC	blk 4 NC
			wht 2 NC

Receiver	3 x 0.18 mm²	3-pin, M8	4-pin, M8
	brn L+	brn 1 L+	brn 1 L+
	blu M	blu 3 M	blu 3 M
	blk Q	blk 4 Q	blk 4 Q
			wht 2 NC

Accessories

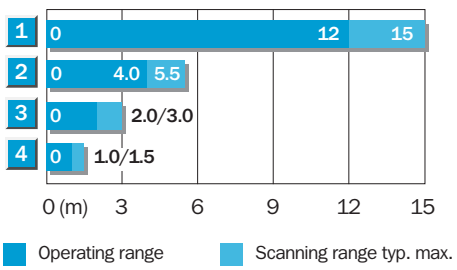
Connectors

Mounting systems

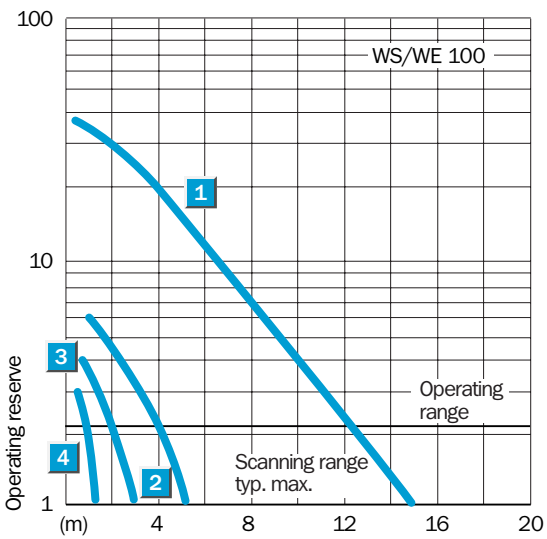
Technical data		WS/WE 100-	N 1239	N 1339	N 3239	N 3339	N 4239	N 4339
Scanning range, typ. max.		15 m	■	■	■	■	■	■
Operating range		12 m	■	■	■	■	■	■
Operating range with mask 2.0 m		4.0 m	■	■	■	■	■	■
Operating range with mask 1.0 m		2.0 m	■	■	■	■	■	■
Operating range with mask 0.5 m		1.0 m	■	■	■	■	■	■
Light 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_S [2]		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 mm², Ø 3.8 mm	■	■				
	cable WE 100	PVC, 2 m [7]; 3 x 0.18 mm², 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 part 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	Part 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

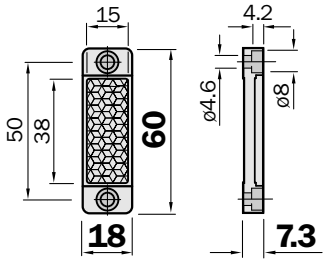
* Types without mounting brackets are also available

Dimensional drawings and order information

Plastic design for temperatures up to 65 °C

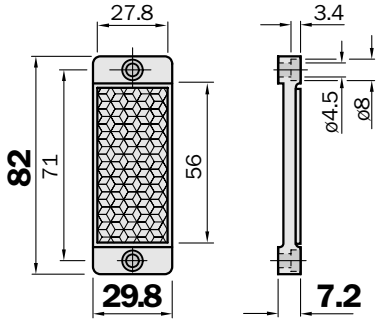
Reflector 20 x 40 mm²

Type	Part no.
PL 20 A	1 012 719



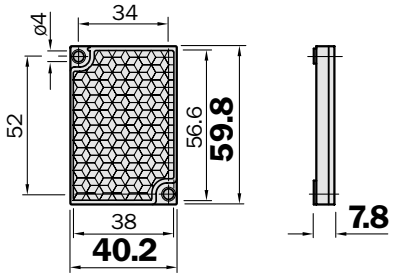
Reflector 30 x 50 mm²

Type	Part no.
PL 30 A	1 002 314



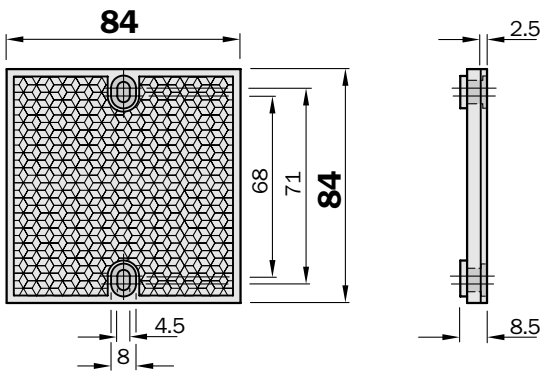
Reflector 40 x 60 mm²

Type	Part no.
PL 40 A	1 012 720



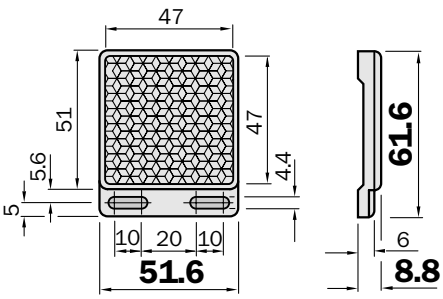
Reflector 80 x 80 mm²

Type	Part no.
PL 80 A	1 003 865



Reflector 47 x 47 mm² *)

Type	Part no.
P 250	5 304 812



*) Included with delivery WL 100

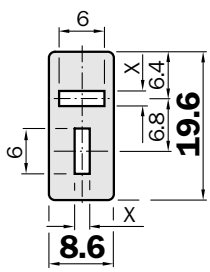
Masks

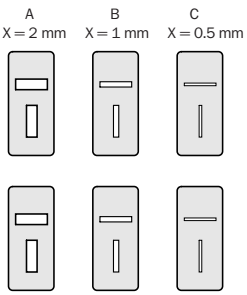
Slotted masks for WS/WE 100 *)

Mask width X: 0.5 mm/1.0 mm/2.0 mm

Type	Part no.
BL-140-10	5 308 458

*) Two pieces each





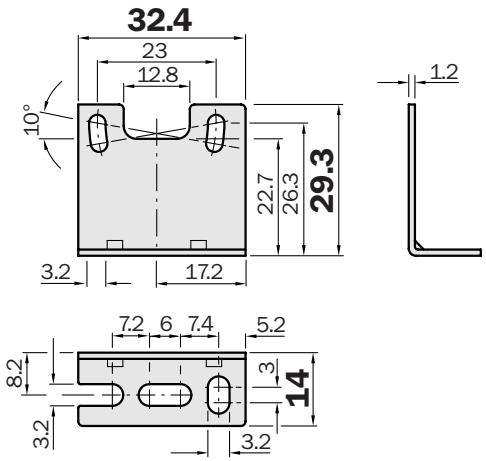
3 pairs with slot widths A, B and C are supplied with equipment.
Mounting by self-adhesive back.
Stick mask on the red optics body of WS 100 and WE 100.
For detecting smaller objects or increasing the switching accuracy.
Only for WS/WE 100.
Changed operating ranges:
A) Slot width 2.0 mm: Scanning distance = 4.0 m
B) Slot width 1.0 mm: Scanning distance = 2.0 m
C) Slot width 0.5 mm: Scanning distance = 1.0 m

Dimensional drawings and order information

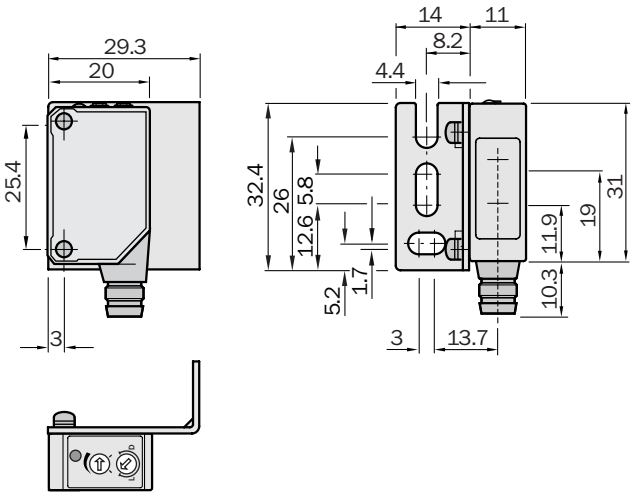
Mounting brackets

Mounting bracket, horizontal for W 100 *)

Type	Part no.
BEF-W 100-A	5 311 520



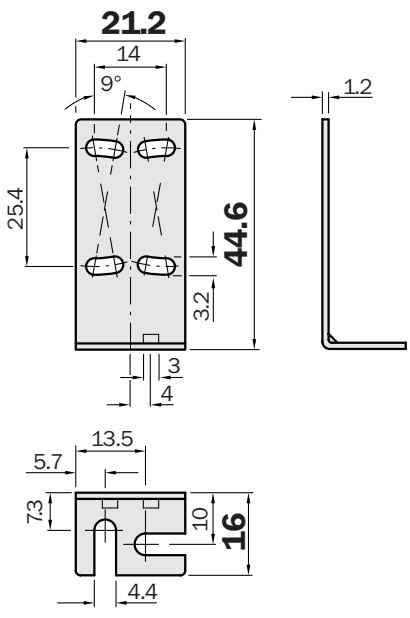
Mounting



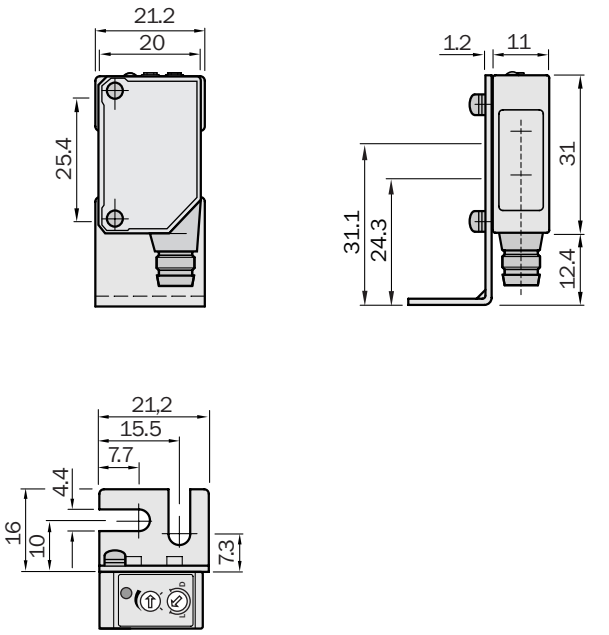
*) Included with delivery W 100

Mounting bracket, vertical für W 100 **)

Type	Part no.
BEF-W 100-B	5 311 521



Mounting



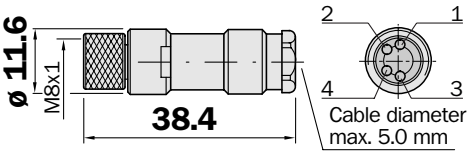
**) Optional. Please order separately

Dimensional drawings and order information

SENSICK screw-in system M8, 3- or 4-pin, enclosure rating IP 67

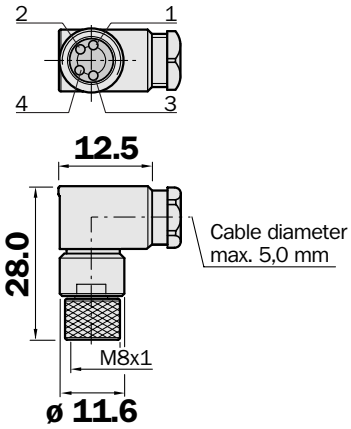
Female connector M8, 3- or 4-pin, straight

Type	Part no.	Contacts
DOS-0803-G	7 902 077	3
DOS-0804-G	6 009 974	4



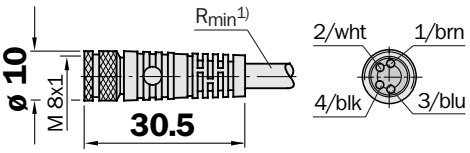
Female connector M8, 3- or 4-pin, right angle

Type	Part no.	Contacts
DOS-0803-W	7 902 078	3
DOS-0804-W	6 009 975	4



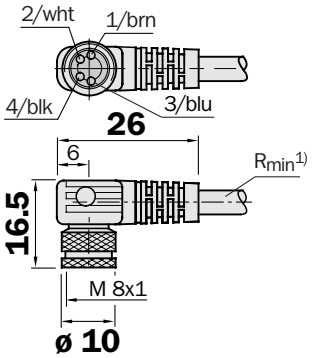
Female connector M8, 3- or 4-pin, straight
3 x 0.34 mm² or 4 x 0.25 mm², sheath PVC

Type	Part no.	Contacts	Cable length
DOL-0803-G02M	6 010 785	3	2 m
DOL-0803-G05M	6 022 009	3	5 m
DOL-0803-G10M	6 022 011	3	10 m
DOL-0804-G02M	6 009 870	4	2 m
DOL-0804-G05M	6 009 872	4	5 m
DOL-0804-G10M	6 010 754	4	10 m



Female connector M8, 3- or 4-pin, right angle
3 x 0.34 mm² or 4 x 0.25 mm², sheath PVC

Type	Part no.	Contacts	Cable length
DOL-0803-W02M	6 008 489	3	2 m
DOL-0803-W05M	6 022 010	3	5 m
DOL-0803-W10M	6 022 012	3	10 m
DOL-0804-W02M	6 009 871	4	2 m
DOL-0804-W05M	6 009 873	4	5 m
DOL-0804-W10M	6 010 755	4	10 m



1) Minimum bend radius in dynamic use
R_{min} = 20 x cable diameter

Dimensional drawings and order information

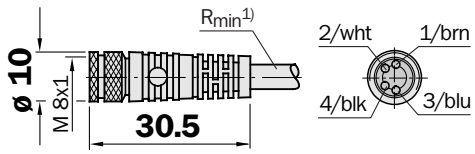
SENSICK screw-in system M8, 3- or 4-pin, enclosure rating IP 67

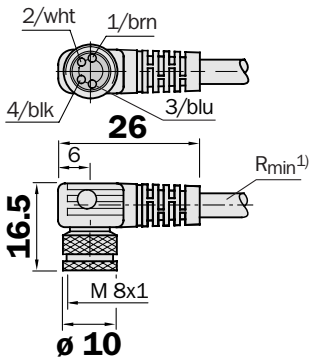
Female connector M8, 3- or 4-pin, straight
3/4 x 0.34 mm², sheath PUR halogen free

Type	Part no.	Contacts	Cable length
DOL-0803-G02MC	6 025 888	3	2 m
DOL-0803-G05MC	6 025 889	3	5 m
DOL-0803-G10MC	6 025 890	3	10 m
DOL-0804-G02MC	6 025 894	4	2 m
DOL-0804-G05MC	6 025 895	4	5 m
DOL-0804-G10MC	6 025 896	4	10 m

Female connector M8, 3- or 4-pin, right angle
3/4 x 0.34 mm², sheath PUR halogen free

Type	Part no.	Contacts	Cable length
DOL-0803-W02MC	6 025 891	3	2 m
DOL-0803-W05MC	6 025 892	3	5 m
DOL-0803-W10MC	6 025 893	3	10 m
DOL-0804-W02MC	6 025 897	4	2 m
DOL-0804-W05MC	6 025 898	4	5 m
DOL-0804-W10MC	6 025 899	4	10 m





1) Minimum bend radius in dynamic use
R_{min} = 20 x cable diameter

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