

W 100: Miniature photoelectric switch series with large scanning ranges



- 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.

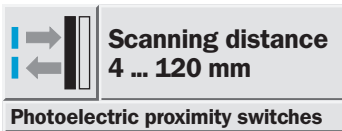
The M8 plug, 3-pin, model especially provides an extremely simple solution for the island technologies being used increasingly. Distributor boxes for plug modules or bus systems. This makes the W 100 especially interesting for the industries storage and conveyor technologies and packaging technologies.

	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.

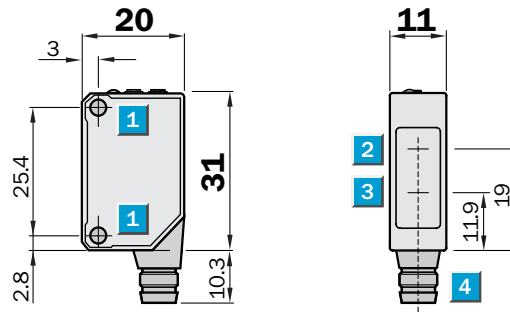
The W 100 highlights:

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



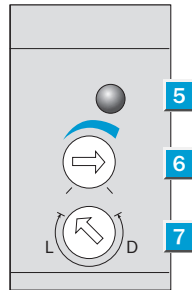
- Photoelectric proximity switch with background blanking, visible red light as alignment aid
- Switching point adjustable

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

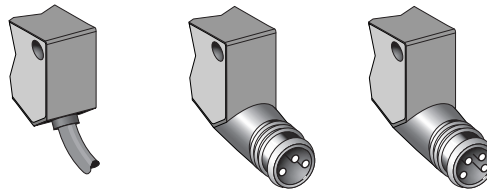


- Mounting hole M3
- Centre of optical axis, receiver
- Centre of optical axis, sender
- Plug M8, 3-pin or cable
- LED signal strength indicator orange: switching output active
- Sensitivity adjustment (270°)
- Light/dark rotary switch: L = light-switching, D = dark-switching



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 mm ²	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 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

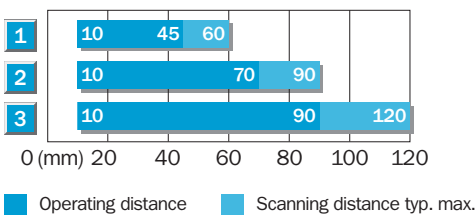
¹⁰⁾ Do not bend below 0 °C

¹¹⁾ A = V_s connections reverse-polarity protected

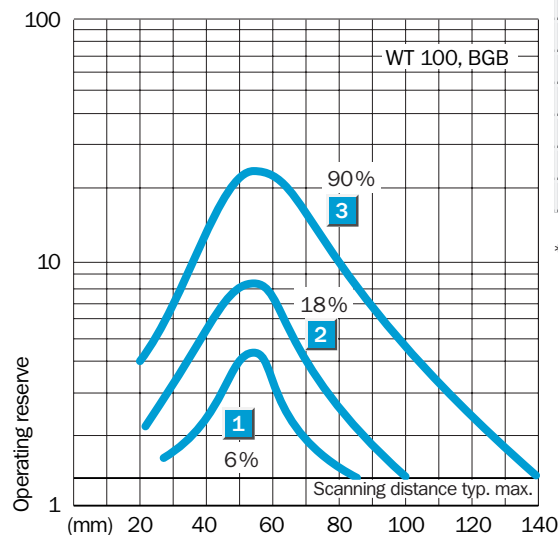
B = Inputs and outputs reverse-polarity protected

D = Outputs overcurrent and short-circuit protected

Scanning distance



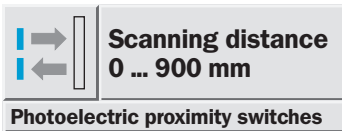
1	Scanning range on black, 6 % remission
2	Scanning range on grey, 18 % remission
3	Scanning range on white, 90 % remission



Order information *

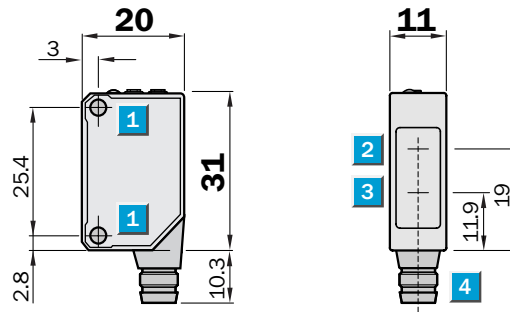
Type	Part no.
WT 100-P 1419	6 026 114
WT 100-P 3419	6 026 116
WT 100-P 4419	6 028 619
WT 100-N 1419	6 026 113
WT 100-N 3419	6 026 115
WT 100-N 4419	6 028 618

* Types without mounting brackets are also available



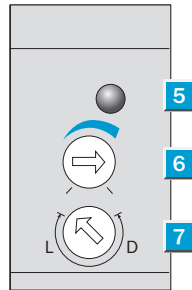
- Energetic photoelectric proximity switches – for standard applications
- Switching point adjustable

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

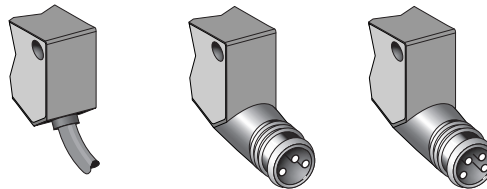


- 1 Mounting hole M3
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 Plug M8, 3-pin or cable
- 5 LED signal strength indicator orange: switching output active
- 6 Sensitivity adjustment (270°)
- 7 Light/dark rotary switch: L = light-switching, D = dark-switching



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 mm ²	3-pin, M8	4-pin, M8
 L+ (brn) M (blu) Q (blk)	 1 (brn) L+ 3 (blu) M 4 (blk) Q	 1 (brn) L+ 3 (blu) M 4 (blk) Q 2 (wht) NC

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 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

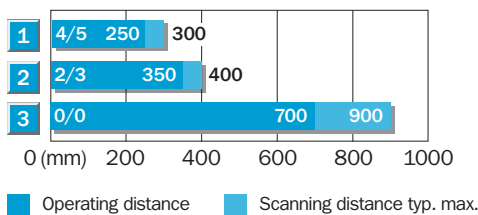
⁹⁾ Do not bend below 0 °C

¹⁰⁾ A = V_s connections reverse-polarity protected

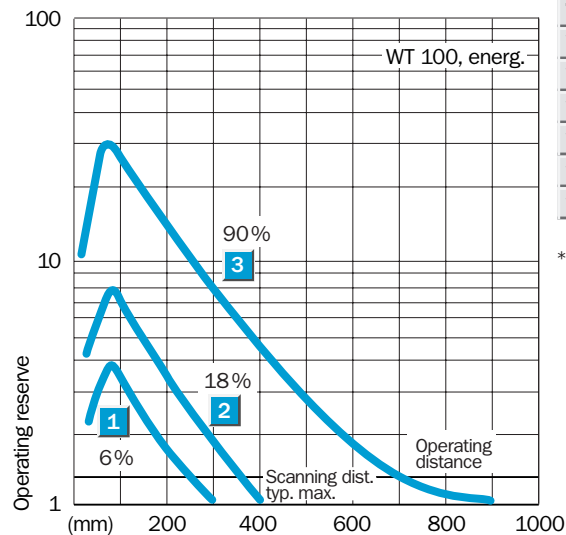
B = Inputs and outputs reverse-polarity protected

D = Outputs overcurrent and short-circuit protected

Scanning distance



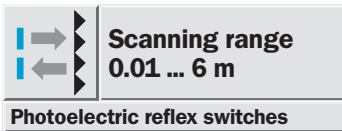
- | | |
|---|---|
| 1 | Scanning range on black, 6 % remission |
| 2 | Scanning range on grey, 18 % remission |
| 3 | Scanning range on white, 90 % remission |



Order information *

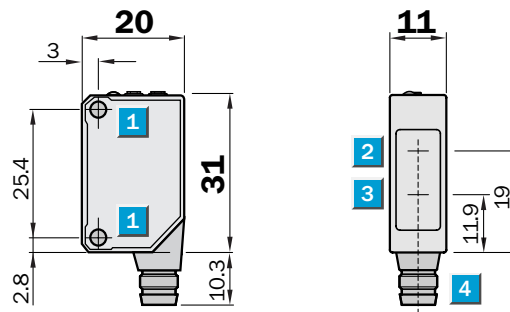
Type	Part no.
WT 100-P 1439	6 026 079
WT 100-P 3439	6 026 081
WT 100-P 4439	6 028 615
WT 100-N 1439	6 026 078
WT 100-N 3439	6 026 080
WT 100-N 4439	6 028 614

* Types without mounting brackets are also available



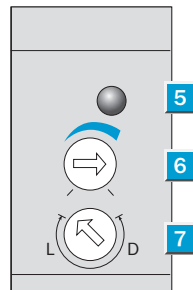
- Polarization filter and consequently reliable detection of objects with shiny surfaces too
- Also suitable for “Diamond Grade” reflective tape
- Sensitivity adjustable

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

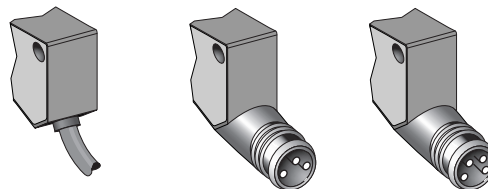


- 1 Mounting hole M3
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 Plug M8, 3-pin or cable
- 5 LED signal strength indicator orange: switching output active
- 6 Sensitivity adjustment (270°)
- 7 Light/dark rotary switch: L = light-switching, D = dark-switching

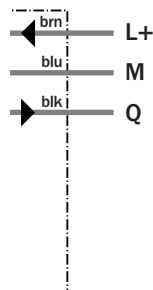


Connection types

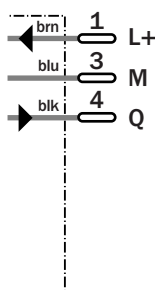
WL 100-P 1439	WL 100-P 3439	WL 100-P 4439
WL 100-N 1439	WL 100-N 3439	WL 100-N 4439



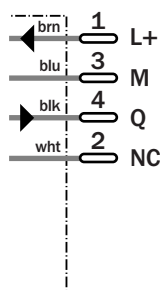
3 x 0.18 mm²



3-pin, M8



4-pin, M8



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 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

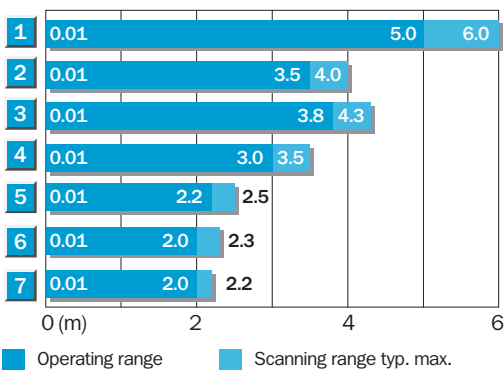
⁹⁾ Do not bend below 0 °C

¹⁰⁾ A = V_s connections reverse-polarity protected

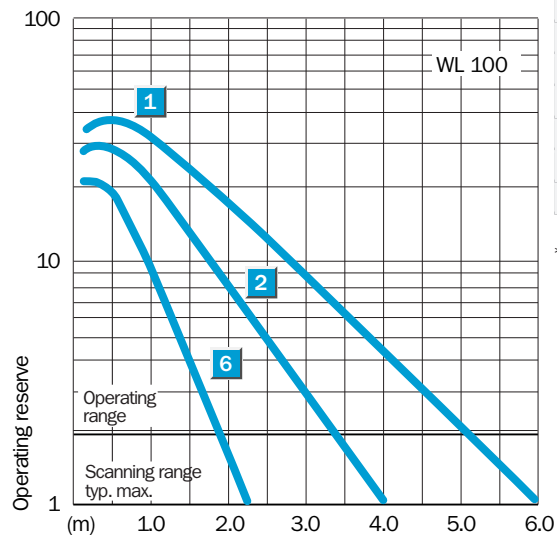
B = Inputs and outputs reverse-polarity protected

D = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve



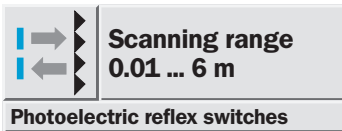
Reflector type	Operating range
1 PL 80 A	0.01 ... 5.0 m
2 P 250	0.01 ... 3.5 m
3 PL 50 A/PL 40 A	0.01 ... 3.8 m
4 PL 30 A/PL 31 A	0.01 ... 3.0 m
5 PL 20 A	0.01 ... 2.2 m
6 Reflective tape Diamond Grade	0.01 ... 2.0 m
7 P 45	0.01 ... 2.0 m



Order information *

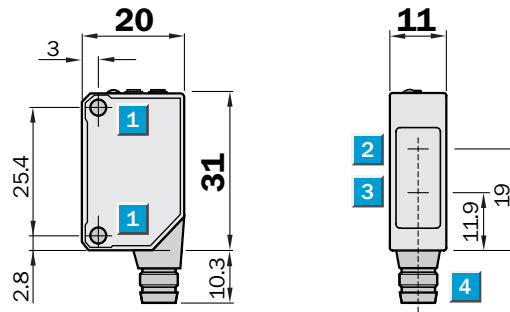
Type	Part no.
WL 100-P 1439	6 026 067
WL 100-P 3439	6 026 073
WL 100-P 4439	6 028 607
WL 100-N 1439	6 026 064
WL 100-N 3439	6 026 070
WL 100-N 4439	6 028 604

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



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

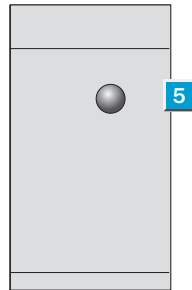
Dimensional drawing



Adjustments possible

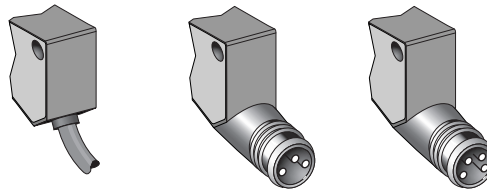
WL 100-P 1239	WL 100-P 3339
WL 100-P 1339	WL 100-P 4239
WL 100-P 3239	WL 100-P 4339

- 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

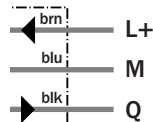


Connection types

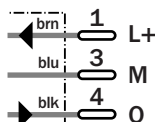
WL 100-P 1239	WL 100-P 3239	WL 100-P 4239
WL 100-P 1339	WL 100-P 3339	WL 100-P 4339



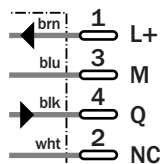
3 x 0.18 mm²



3-pin, M8



4-pin, M8



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 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⁾	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

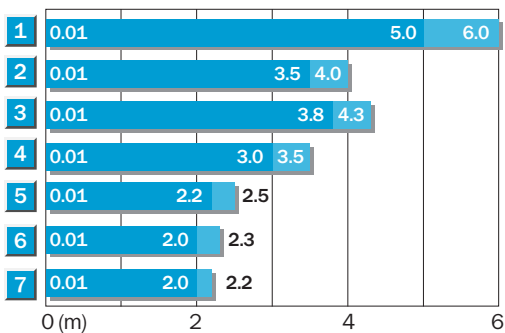
⁸⁾ Do not bend below 0 °C

⁹⁾ A = V_s connections reverse-polarity protected

B = Inputs and outputs reverse-polarity protected

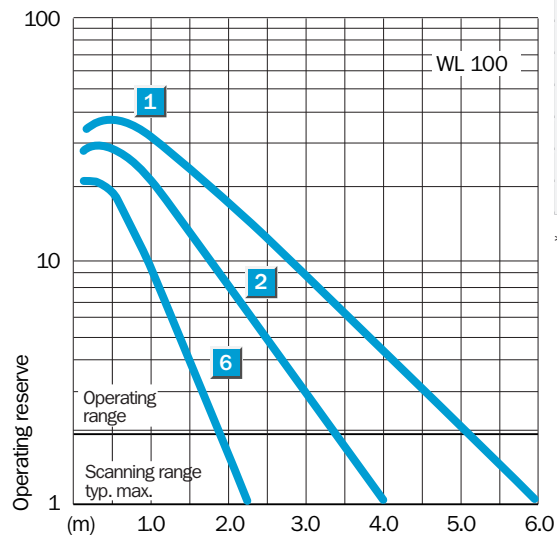
D = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve



Operating range Scanning range typ. max.

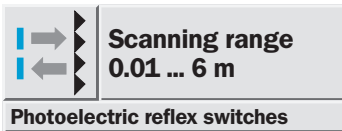
Reflector type	Operating range
1 PL 80 A	0.01 ... 5.0 m
2 P 250	0.01 ... 3.5 m
3 PL 50 A/PL 40 A	0.01 ... 3.8 m
4 PL 30 A/PL 31 A	0.01 ... 3.0 m
5 PL 20 A	0.01 ... 2.2 m
6 Reflective tape Diamond Grade	0.01 ... 2.0 m
7 P 45	0.01 ... 2.0 m



Order information *

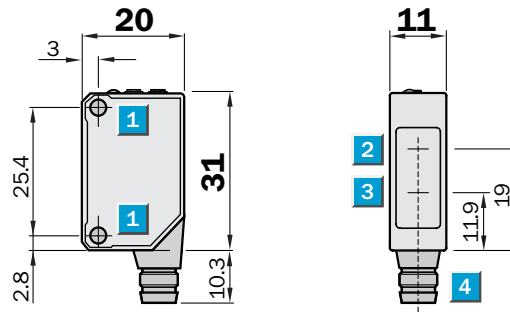
Type	Part no.
WL 100-P 1239	6 026 065
WL 100-P 1339	6 026 066
WL 100-P 3239	6 026 071
WL 100-P 3339	6 026 072
WL 100-P 4239	6 028 605
WL 100-P 4339	6 028 606

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



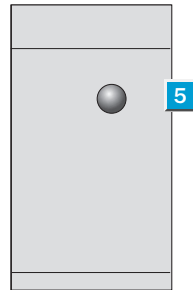
- Polarization filter and consequently reliable detection of objects with shiny surfaces too
- Also suitable for “Diamond Grade” reflective tape
- Light- or dark-switching

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

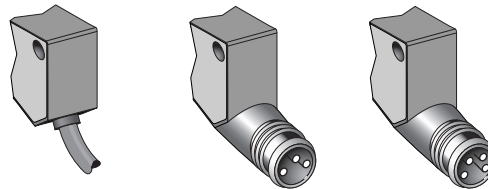


- 1 Mounting hole M3
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 Plug M8, 3-pin or cable
- 5 LED signal strength indicator orange: switching output active

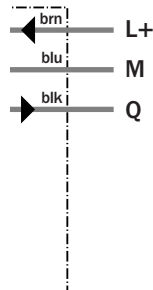


Connection types

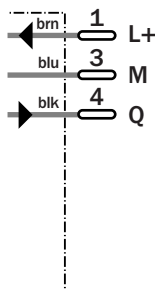
WL 100-N 1239	WL 100-N 3239	WL 100-N 4239
WL 100-N 1339	WL 100-N 3339	WL 100-N 4339



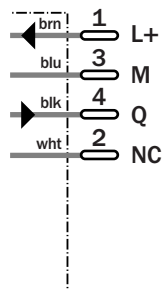
3 x 0.18 mm²



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 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⁾	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

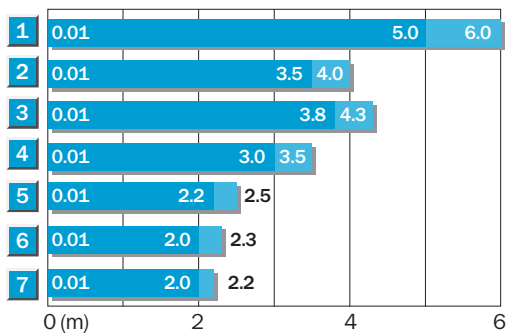
⁸⁾ Do not bend below 0 °C

⁹⁾ A = V_s connections reverse-polarity protected

B = Inputs and outputs reverse-polarity protected

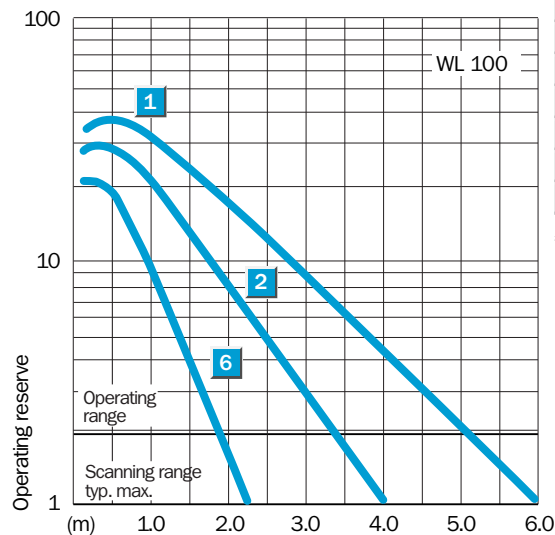
D = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve



Operating range Scanning range typ. max.

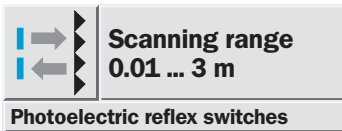
Reflector type	Operating range
1 PL 80 A	0.01 ... 5.0 m
2 P 250	0.01 ... 3.5 m
3 PL 50 A/PL 40 A	0.01 ... 3.8 m
4 PL 30 A/PL 31 A	0.01 ... 3.0 m
5 PL 20 A	0.01 ... 2.2 m
6 Reflective tape Diamond Grade	0.01 ... 2.0 m
7 P 45	0.01 ... 2.0 m



Order information *

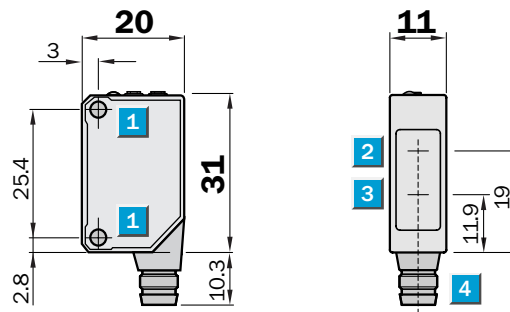
Type	Part no.
WL 100-N 1239	6 026 062
WL 100-N 1339	6 026 063
WL 100-N 3239	6 026 068
WL 100-N 3339	6 026 069
WL 100-N 4239	6 028 602
WL 100-N 4339	6 028 603

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



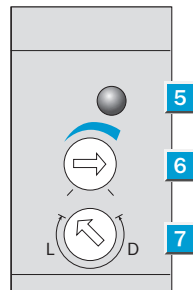
- Ideal for detection of glass or transparent objects
- Detection reliability, min. attenuation 20 %, min. transmission variation 15 %
- Also suitable for “Diamond Grade” reflection tape
- Sensitivity adjustable

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

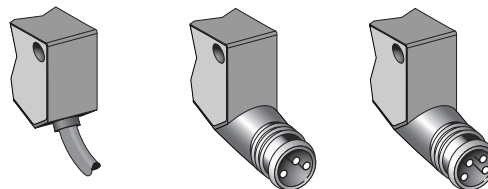


- 1 Mounting hole M3
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 Plug M8, 3-pin or cable
- 5 LED signal strength indicator orange: switching output active
- 6 Sensitivity adjustment (270°)
- 7 Light/dark rotary switch: L = light-switching, D = dark-switching

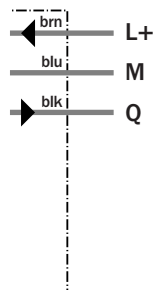


Connection types

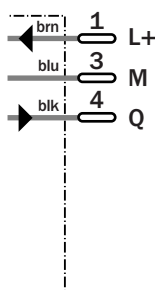
WL 100-P 1429	WL 100-P 3429	WL 100-P 4429
WL 100-N 1429	WL 100-N 3429	WL 100-N 4429



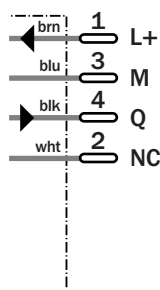
3 x 0.18 mm²



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 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 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 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

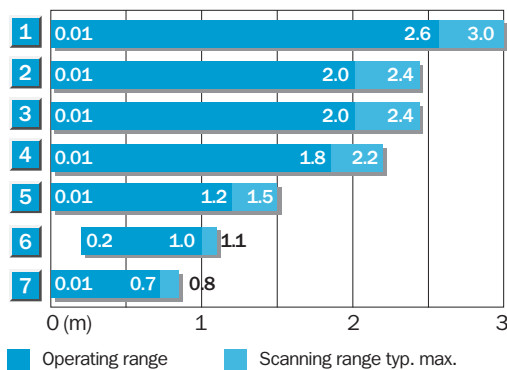
⁹⁾ Do not bend below 0 °C

¹⁰⁾ A = V_s connections reverse-polarity protected

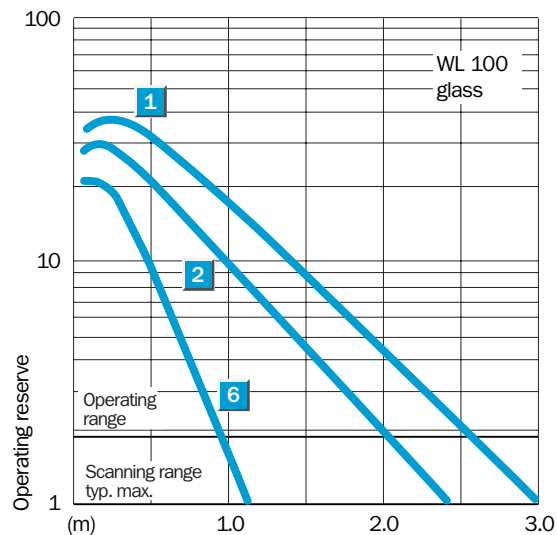
B = Inputs and outputs reverse-polarity protected

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	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

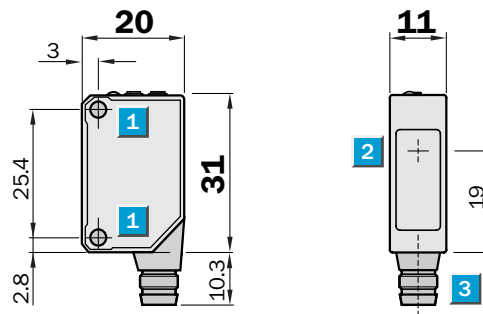


Scanning range
15 m

Through-beam photoelectric switches

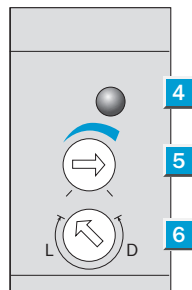
- Slotted masks for detecting small parts or for positioning jobs
- Sensitivity adjustable

Dimensional drawing



Adjustments possible

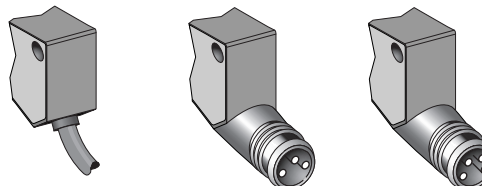
WS/WE 100-P 1439	WS/WE 100-N 1439
WS/WE 100-P 3439	WS/WE 100-N 3439
WS/WE 100-P 4439	WS/WE 100-N 4439



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

Connection types

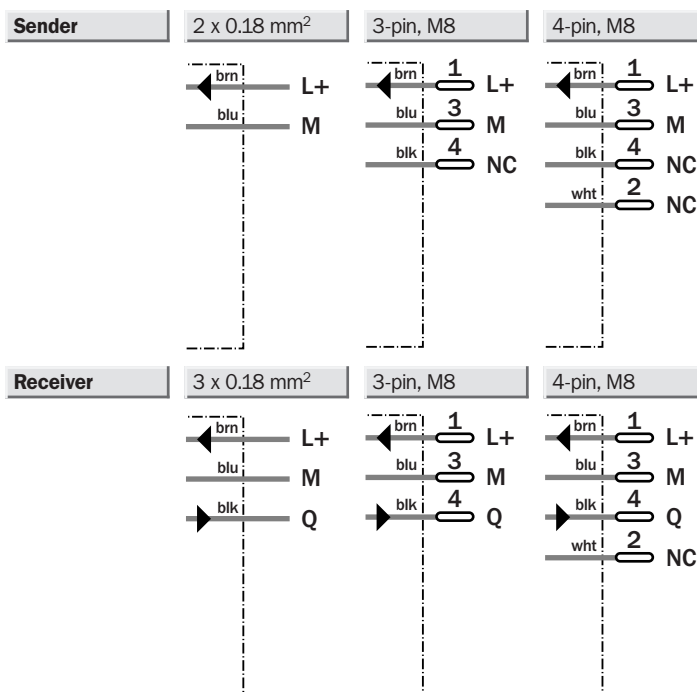
WS/WE 100-P 1439	WS/WE 100-P 3439	WS/WE 100-P 4439
WS/WE 100-N 1439	WS/WE 100-N 3439	WS/WE 100-N 4439



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 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 $T_A = +25\text{ °C}$

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

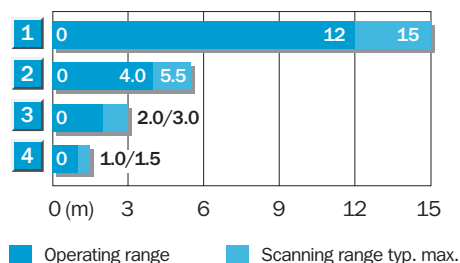
⁹⁾ A = V_s connections reverse-polarity protected

B = Inputs and outputs reverse-polarity protected

D = Outputs overcurrent and short-circuit protected

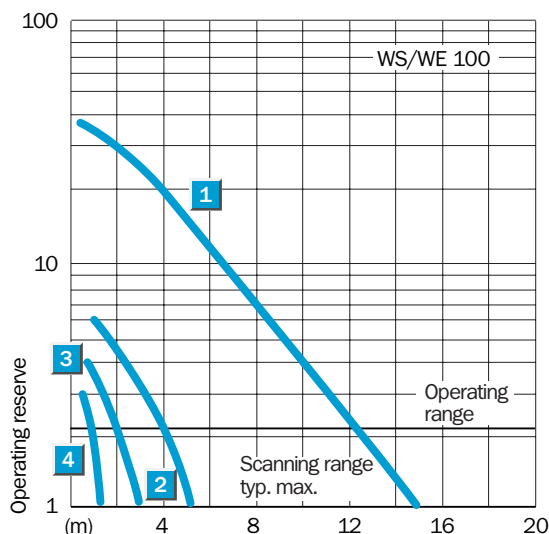
¹⁰⁾ The part no. contains transmitter and receiver

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

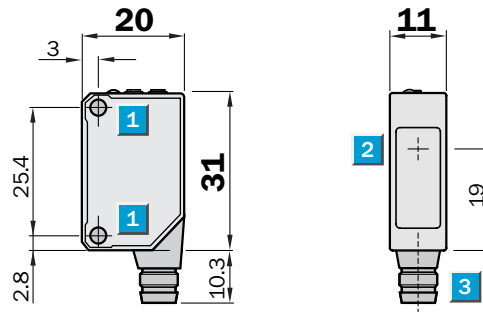


Scanning range
15 m

Through-beam photoelectric switches

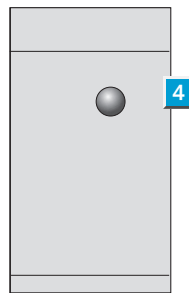
- Slotted masks for detecting small parts or for positioning jobs

Dimensional drawing



Adjustments possible

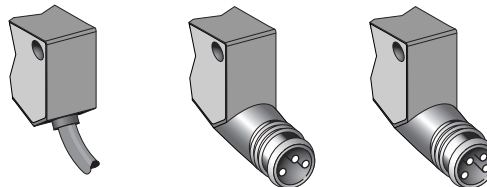
WS/WE 100-P 1239	WS/WE 100-P 3339
WS/WE 100-P 1339	WS/WE 100-P 4239
WS/WE 100-P 3239	WS/WE 100-P 4339



- 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

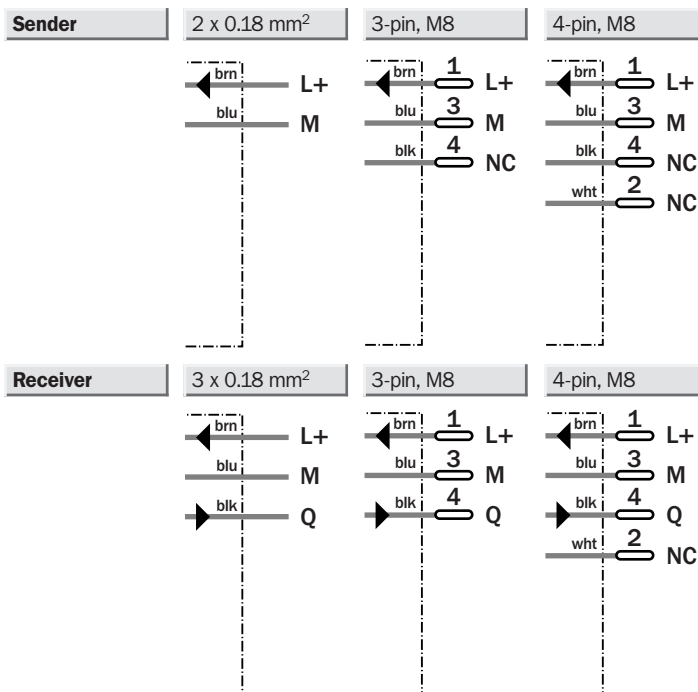
WS/WE 100-P 1239	WS/WE 100-P 3239	WS/WE 100-P 4239
WS/WE 100-P 1339	WS/WE 100-P 3339	WS/WE 100-P 4339



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 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 $T_A = +25\text{ °C}$

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

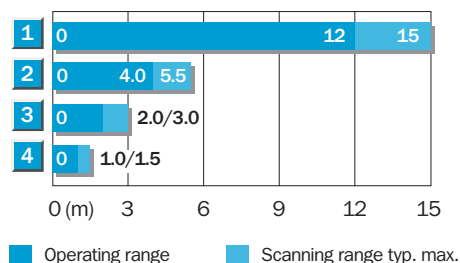
⁸⁾ A = V_s connections reverse-polarity protected

B = Inputs and outputs reverse-polarity protected

D = Outputs overcurrent and short-circuit protected

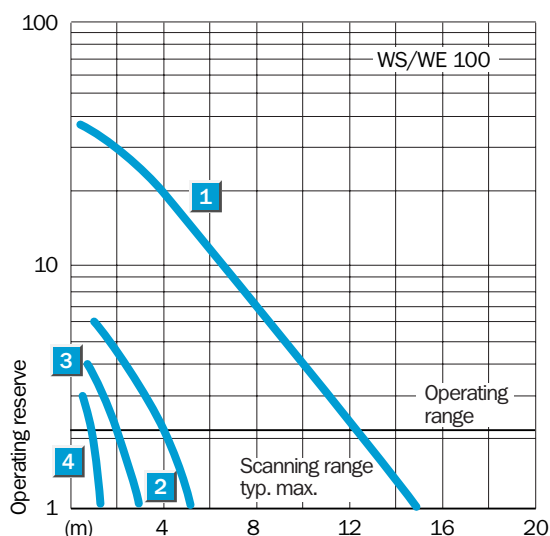
⁹⁾ The part no. contains sender and receiver

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

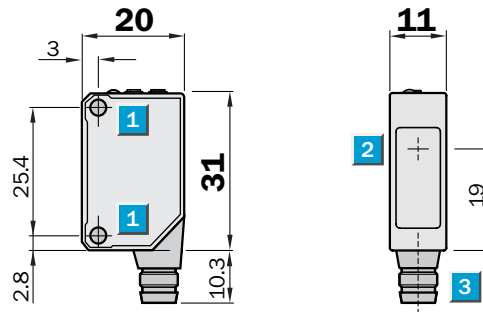


Scanning range
15 m

Through-beam photoelectric switches

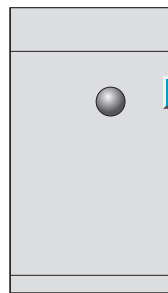
- Slotted masks for detecting small parts or for positioning jobs

Dimensional drawing



Adjustments possible

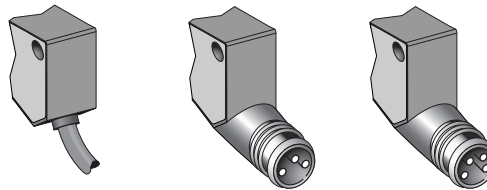
WS/WE 100-N 1239	WS/WE 100-N 3339
WS/WE 100-N 1339	WS/WE 100-N 4239
WS/WE 100-N 3239	WS/WE 100-N 4339



- 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

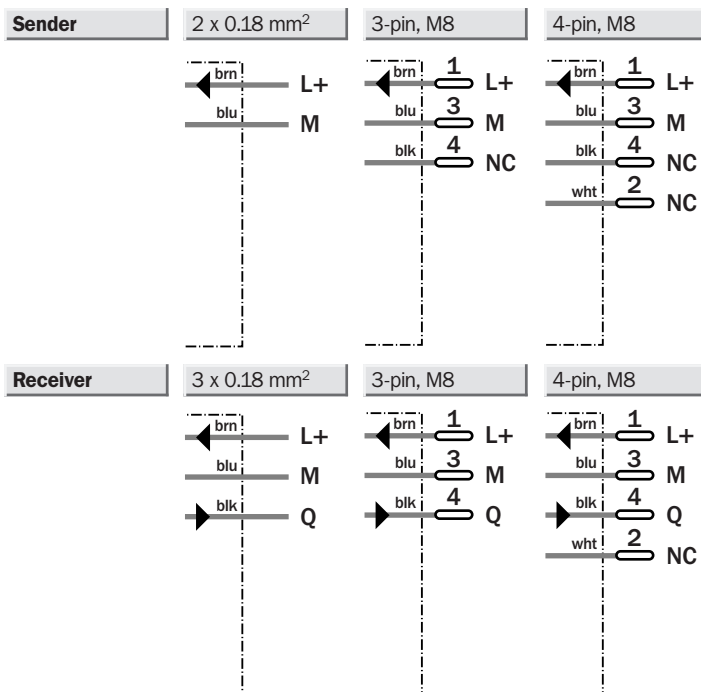
WS/WE 100-N 1239	WS/WE 100-N 3239	WS/WE 100-N 4239
WS/WE 100-N 1339	WS/WE 100-N 3339	WS/WE 100-N 4339



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 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 $T_A = +25\text{ °C}$

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

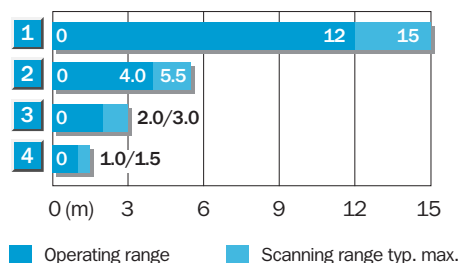
⁸⁾ A = V_s connections reverse-polarity protected

B = Inputs and outputs reverse-polarity protected

D = Outputs overcurrent and short-circuit protected

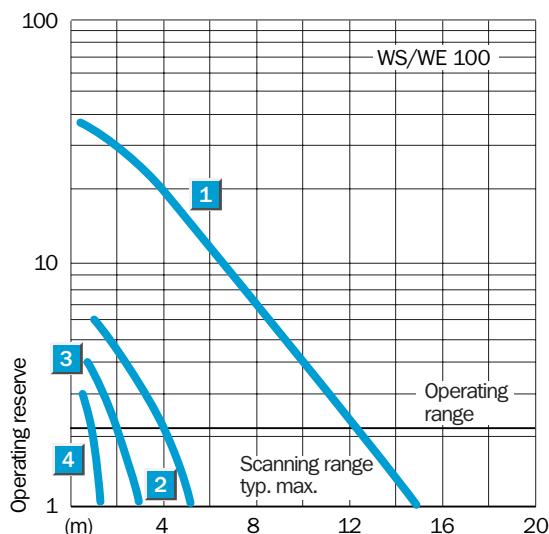
⁹⁾ The part no. contains sender and receiver

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

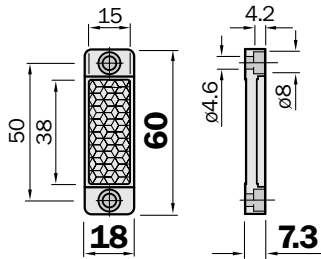
* Types without mounting brackets are also available

Dimensional drawings and order information

Plastic design for temperatures up to 65 °C

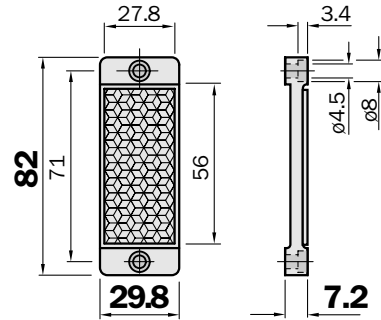
Reflector 20 x 40 mm²

Type	Part no.
PL 20 A	1 012 719



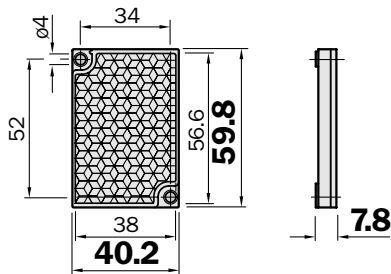
Reflector 30 x 50 mm²

Type	Part no.
PL 30 A	1 002 314



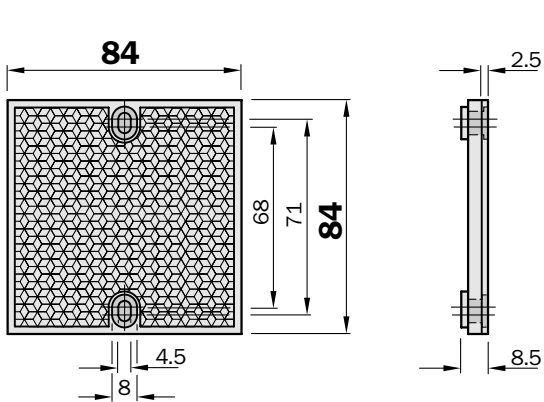
Reflector 40 x 60 mm²

Type	Part no.
PL 40 A	1 012 720



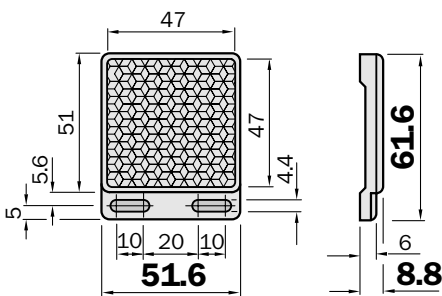
Reflector 80 x 80 mm²

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

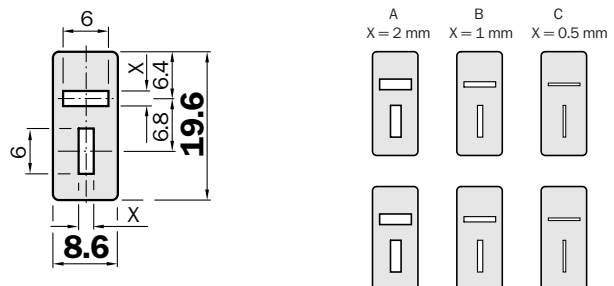
Masks

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



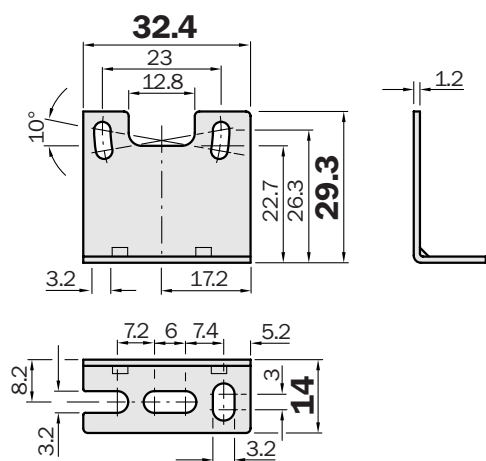
3 pairs with slot widths A, B and C are supplied with equipment.
Mounting by self-adhesive back.
Stick mask on the red optics body of WS 100 and WE 100.
For detecting smaller objects or increasing the switching accuracy.
Only for WS/WE 100.
Changed operating ranges:
A) Slot width 2.0 mm: Scanning distance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

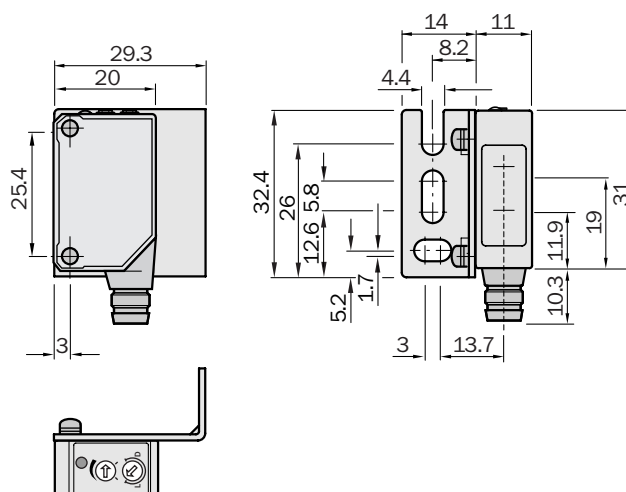
Mounting brackets

Mounting bracket, horizontal for W 100 *)

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



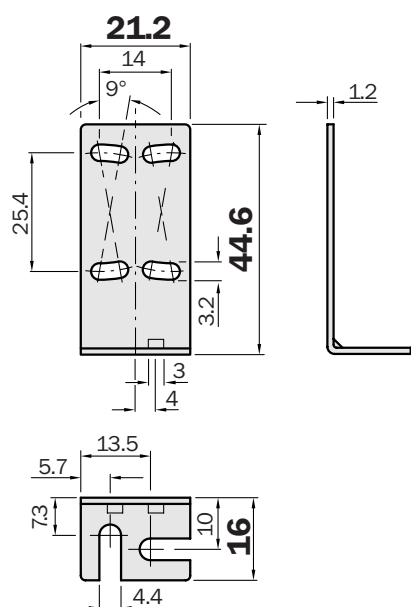
Mounting



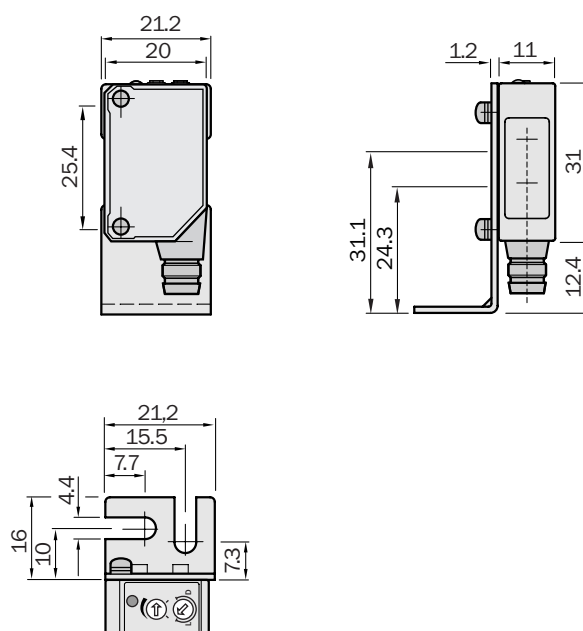
*) Included with delivery W 100

Mounting bracket, vertical für W 100 **)

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



Mounting



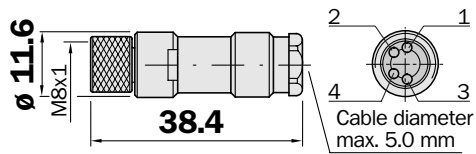
***) Optional. Please order separately

Dimensional drawings and order information

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

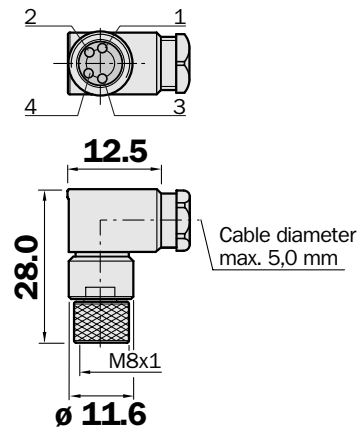
Female connector M8, 3- or 4-pin, straight

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

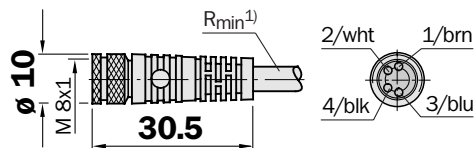
Type	Part no.	Contacts
DOS-0803-W	7 902 078	3
DOS-0804-W	6 009 975	4



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

3 x 0.34 mm² or 4 x 0.25 mm², sheath PVC

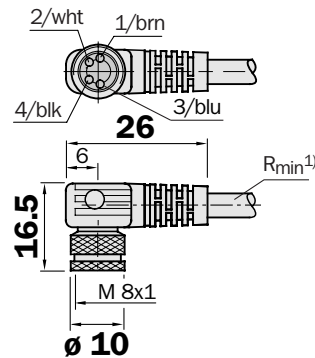
Type	Part no.	Contacts	Cable length
DOL-0803-G02M	6 010 785	3	2 m
DOL-0803-G05M	6 022 009	3	5 m
DOL-0803-G10M	6 022 011	3	10 m
DOL-0804-G02M	6 009 870	4	2 m
DOL-0804-G05M	6 009 872	4	5 m
DOL-0804-G10M	6 010 754	4	10 m



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
 $R_{min} = 20 \times \text{cable diameter}$

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

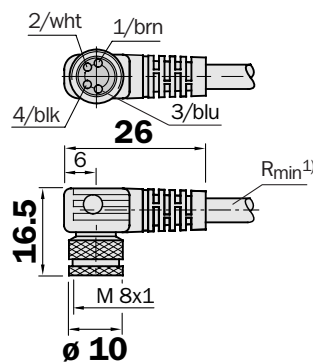
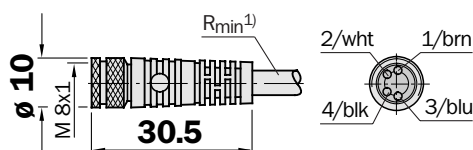
3/4 x 0.34 mm², sheath PUR halogen free

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
 $R_{min} = 20 \times \text{cable diameter}$

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