



◀ The robust design and large scanning distance are of advantage to the WT45 photoelectric proximity switch when used to check for tear-off on a paper rolling machine.




▶ A WS/WE45 through-beam photoelectric switch monitors tear-off on a paper web.



▲ Extreme operating conditions exist in steel making plants – the WT45 photoelectric proximity switch is ideal for many applications, such as detecting metal sheets before they are wound onto coils.

▶ Scale, steam and heat in a rolling mill does not affect the WT45 – here used to detect the presence of steel slabs.

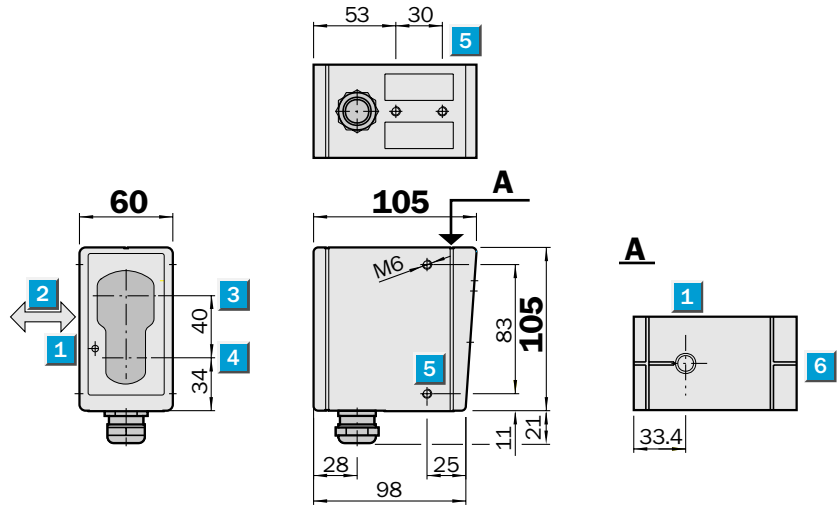


 **Scanning distance**
400 ... 2000 mm

Photoelectric proximity switches

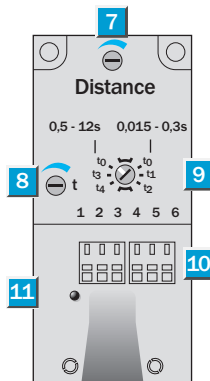
- Robust metal housing
- Infrared light, very long scanning range
- Adjustable background suppression
- Front lens heating, optional

Dimensional drawing



Adjustments possible

- WT45-P250
- WT45-P260
- WT45-N250
- WT45-N260



- 1 LED signal strength indicator
- 2 Standard direction of the material being scanned
- 3 Centre of optical axis, receiver
- 4 Centre of optical axis, sender
- 5 Threaded mounting hole M6 – 8 mm deep
- 6 Alignment sight
- 7 Scanning distance adjustment
- 8 Time adjustment
- 9 Time delay selector switch
- 10 Terminal strip
- 11 Status indicator

Switch-selectable time delay

0.5 – 12 s

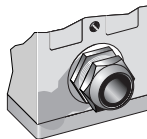
- t₀ without time delay
- t₃ ON-delay when object enters detection zone
- t₄ OFF-delay when object leaves detection zone

0.015 – 0.3 s

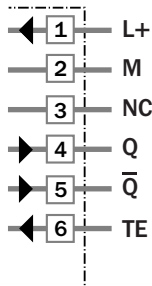
- t₀ without time delay
- t₁ ON-delay when object enters detection zone
- t₂ OFF-delay when object leaves detection zone

Connection type

- WT45-P250
- WT45-P260
- WT45-N250
- WT45-N260



PG 13.5; terminals



See chapter Accessories

- Mounting systems
- Special accessories

Technical data		WT45-	P250	P260	N250	N260						
Scanning distance	400...2000 mm, adjustable											
Light source ¹⁾ , light type	LED, infrared light											
Light spot diameter	Approx. 35 mm at 2000 mm											
Supply voltage V_S	10...60 V DC ²⁾											
Residual ripple ³⁾	< 5 V_{SS}											
Current consumption ⁴⁾	≤ 50 mA											
	≤ 250 mA, front lens heating											
Switching outputs	PNP, Q and \bar{Q}											
	NPN, Q and \bar{Q}											
Output current I_A max.	200 mA											
Response time ⁵⁾	6 ms											
Max. switching frequency ⁶⁾	50/s											
Test input »TE«												
Sender OFF	PNP: Test input to 0 V											
	NPN: Test input to V_S											
Connection type	Terminal connection											
VDE protection class	⊕											
Circuit protection ⁷⁾	A, B, C											
Enclosure rating	IP 67											
Ambient temperature T_A ⁸⁾	Operation - 25 °C...+ 55 °C											
	Storage - 40 °C...+ 70 °C											
Weight	Approx. 800 g											
Front lens heating												
Housing material	Metal housing											

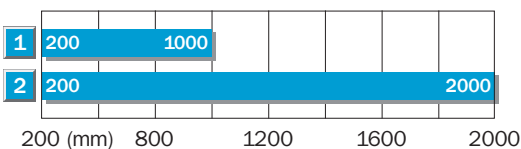
1) Average service life 100,000 h at $T_A = + 25 °C$
 2) Limit values
 3) May not exceed or fall short of V_S tolerances

4) Without load
 5) Signal transit time with resistive load
 6) With light/dark ratio 1:1

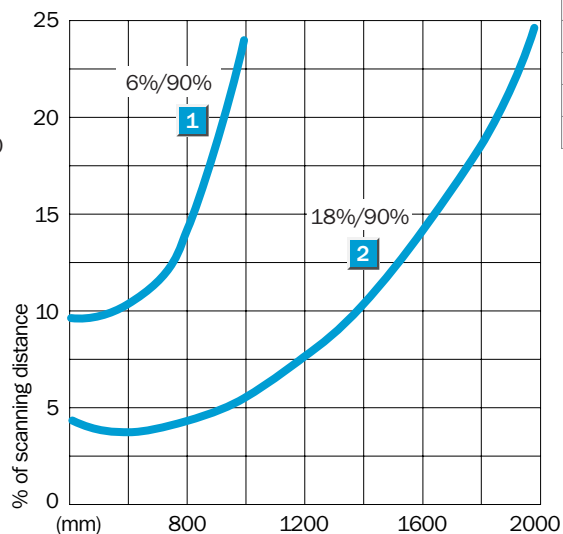
7) A = V_S connections reverse-polarity protected
 B = Output Q and \bar{Q} short-circuit protected
 C = Interference pulse suppression

8) Up to 140 °C with cooling plates (see Accessories)

Scanning distance




- 1 Scanning distance on black, 6 % remission
- 2 Scanning distance on grey, 18 % remission



Order Information

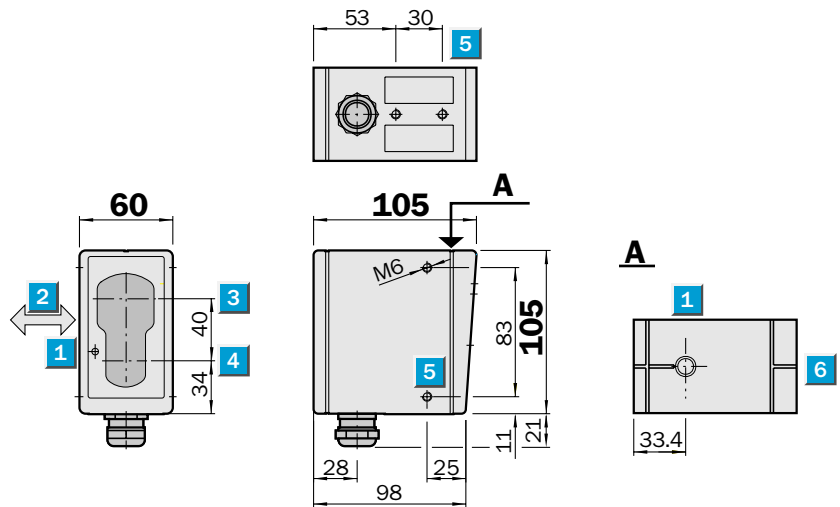
Type	Order no.
WT45-P250	1009117
WT45-P260	1009108
WT45-N250	1009116
WT45-N260	1009109

 **Scanning distance**
400 ... 2000 mm

Photoelectric proximity switches

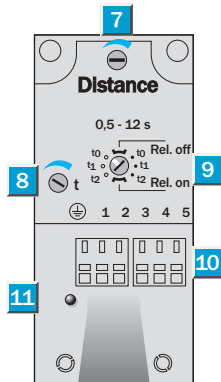
- Universal voltage
- Robust metal housing
- Infrared light, very long scanning range
- Adjustable background suppression
- Front lens heating, optional

Dimensional drawing



Adjustments possible

- WT45-R250
- WT45-R260



- 1 LED signal strength indicator
- 2 Standard direction of the material being scanned
- 3 Centre of optical axis, receiver
- 4 Centre of optical axis, sender
- 5 M6 threaded mounting hole – 8 mm deep
- 6 Alignment sight
- 7 Scanning distance adjustment
- 8 Time adjustment
- 9 Time delay selector switch
left: light-switching, right: dark-switching
- 10 Terminal strip
- 11 Status indicator

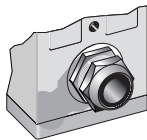
Switch-selectable time delay

0.5 – 12 s

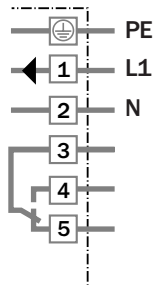
- t₀ without time delay
- t₁ ON-delay when object enters detection zone
- t₂ OFF-delay when object leaves detection zone

Connection type

- WT45-R250
- WT45-R260



PG 13.5; terminals



See chapter Accessories

- Mounting systems
- Special accessories

Technical data		WT45-	R250	R260								
Scanning distance	400...2000 mm, adjustable											
Light source¹⁾, light type	LED, infrared light											
Light spot diameter	Approx. 35 mm at 2000 mm											
Supply voltage V_S	24...240 V UC (+ 10%, - 25%)											
Power consumption	≤ 3 VA											
	≤ 6 VA, front lens heating											
Switching outputs	Relay, SPDT, isolated ²⁾											
Max. switching voltage	AC: 250 V / DC: 120 V											
Switching current	4 A / 240 V AC o. 24 V DC ³⁾											
Max. switching capacity	AC: 1000 VA / DC: 100 W											
Response time	≤ 20 ms											
Max. switching frequency ⁴⁾	10/s											
Connection type	Terminal connection											
VDE protection class	⊕											
Circuit protection⁵⁾	A, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation - 25 °C...+ 55 °C ⁶⁾											
	Storage - 40 °C...+ 70 °C											
Weight	Approx. 800 g											
Front lens heating												
Housing material	Metal housing											

¹⁾ Average service life 100,000 h at T_A = + 25 °C

²⁾ Provide suitable spark suppression for inductive or capacitive loads

³⁾ Usage Category to EN 60947-1, 15 AC, 13 DC

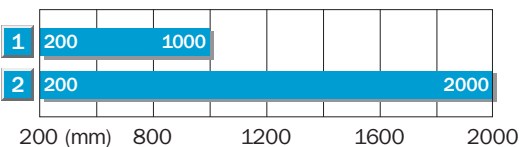
⁴⁾ With light/dark ratio 1:1

⁵⁾ A = V_S connections reverse-polarity protected

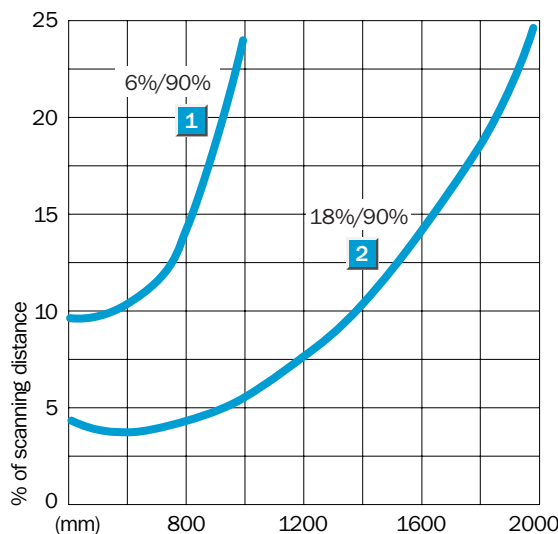
C = Interference pulse suppression

⁶⁾ Up to 140 °C with cooling plates (see Accessories)

Scanning distance




- 1 Scanning distance on black, 6% remission
- 2 Scanning distance on grey, 18% remission



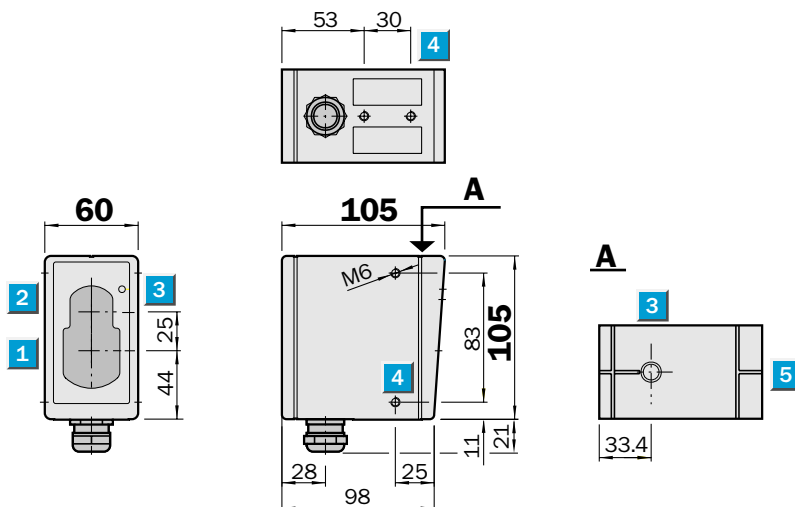
Order information

Type	Order no.
WT45-R250	1009118
WT45-R260	1009107


Scanning range
0.01 ... 55 m
 Photoelectric reflex switches

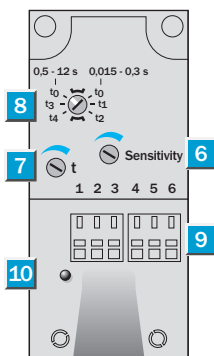
- Robust metal housing
- Red light
- Adjustable sensitivity
- Front lens heating, optional
- Pre-failure signalling output

Dimensional drawing



Adjustments possible

- WL45-P250
- WL45-P260
- WL45-N250
- WL45-N260



- 1 Centre of optical axis, sender
- 2 Centre of optical axis, receiver
- 3 LED signal strength indicator
- 4 M6 threaded mounting hole – 8 mm deep
- 5 Alignment sight
- 6 Sensitivity adjustment
- 7 Time adjustment
- 8 Time delay selector switch
- 9 Terminal strip
- 10 Status indicator

Switch-selectable time delay

0.5 – 12 s

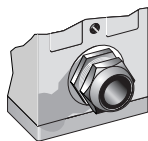
- t_0 without time delay
- t_3 ON-delay when object enters detection zone
- t_4 OFF-delay when object leaves detection zone

0.015 – 0.3 s

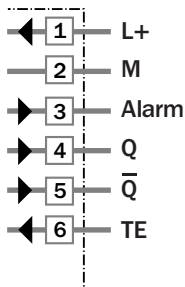
- t_0 without time delay
- t_1 ON-delay when object enters detection zone
- t_2 OFF-delay when object leaves detection zone

Connection type

- WL45-P250
- WL45-P260
- WL45-N250
- WL45-N260



PG 13.5; terminals



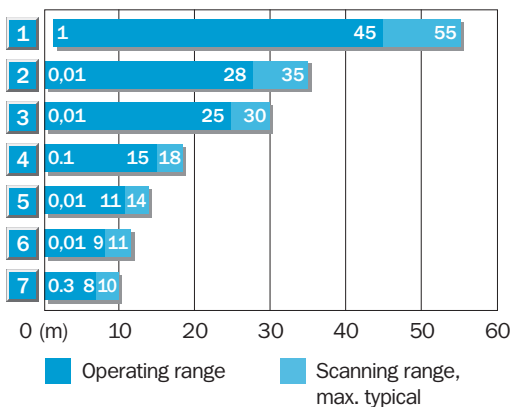
See chapter Accessories

- Mounting systems
- Reflectors
- Special accessories

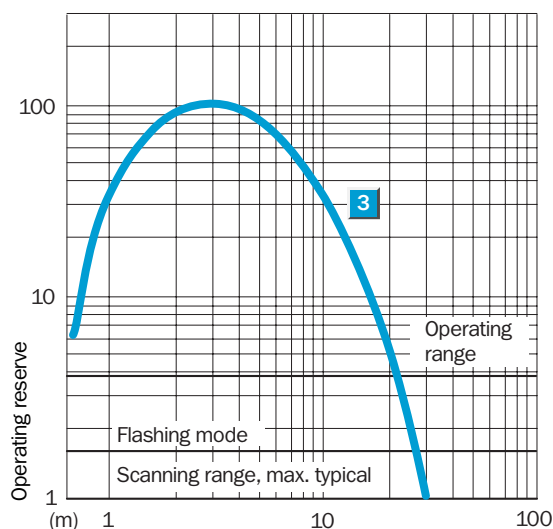
Technical data		WL45-	P250	P260	N250	N260						
Scanning range , max. typical/on refl.	0.01...55 m/OP 60											
Sensitivity	Adjustable											
Light source¹⁾, light type	LED, visible red light											
Light spot diameter	Approx. 230 mm at 16 m											
Supply voltage V_S	10...60 V DC ²⁾											
Residual ripple ³⁾	< 5 V _{SS}											
Current consumption ⁴⁾	≤ 50 mA											
	≤ 250 mA, front lens heating											
Switching outputs	PNP, Q and \bar{Q}											
	NPN, Q and \bar{Q}											
Output current I _A max.	200 mA											
Response time ⁵⁾	≤ 1.2 ms											
Max. switching frequency ⁶⁾	400/s											
Pre-failure signalling output	Alarm											
Output current I _A max.	100 mA, open collector											
Insufficient light received	Flashes at approx. 5/s, switch to V _S											
(Reserve < 50 %)												
Test input »TE«												
Sender OFF	PNP: Test input to 0 V											
	NPN: Test input to V _S											
Connection type	Terminal connection											
VDE protection class⁷⁾	⊕											
Circuit protection⁸⁾	A, B, C											
Enclosure rating	IP 67											
Ambient temperature T_A⁹⁾	Operation -25 °C...+55 °C											
	Storage -40 °C...+70 °C											
Weight	Approx. 800 g											
Front lens heating												
Polarising filter												
Housing material	Metal housing											

- 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) Reference voltage 50 V DC
- 8) A = V_S connections reverse-polarity protected
B = Output Q and \bar{Q} short-circuit protected
C = Interference pulse suppression
- 9) Up to 140 °C with cooling plates (see Accessories)

Scanning range and operating reserve




Reflector type	Operating range
1 OP 60 – ∞	1 ... 45 m
2 4 x PL 80	0,01 ... 28 m
3 PL 80 A	0,01 ... 25 m
4 C 110	0,1 ... 15 m
5 PL 50	0,01 ... 11 m
6 PL 30	0,01 ... 9 m
7 Reflective tape	0,3 ... 8 m
Diamond Grade	



Order information

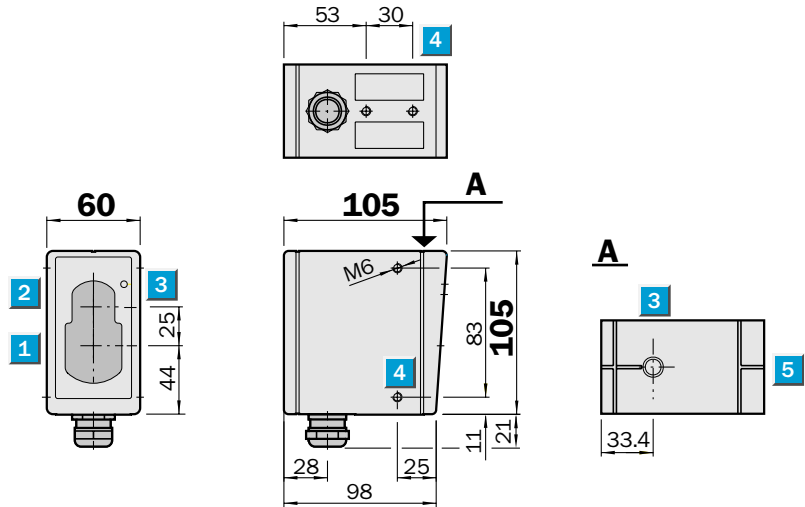
Type	Order no.
WL45-P250	1008840
WL45-P260	1008668
WL45-N250	1008839
WL45-N260	1008669


Scanning range
0.01 ... 55 m

Photoelectric reflex switches

- Universal voltage
- Robust metal housing
- Red light
- Adjustable sensitivity
- Front lens heating, optional

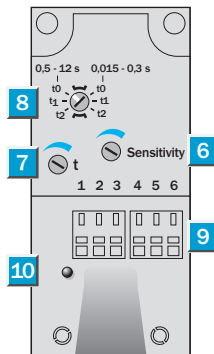
Dimensional drawing



Adjustments possible

WL45-R250

WL45-R260



- 1 Centre of optical axis, sender
- 2 Centre of optical axis, receiver
- 3 LED signal strength indicator
- 4 M6 threaded mounting hole – 8 mm deep
- 5 Alignment sight
- 6 Sensitivity adjustment
- 7 Time adjustment
- 8 Time delay selector switch
left: light-switching, right: dark-switching
- 9 Terminal strip
- 10 Status indicator

Switch-selectable time delay

0.5 – 12 s

t_0 without time delay

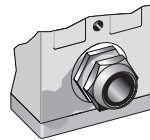
t_1 ON-delay when object enters detection zone

t_2 OFF-delay when object leaves detection zone

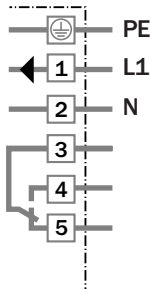
Connection type

WL45-R250

WL45-R260



PG 13.5; terminals



See chapter Accessories

Mounting systems

Reflectors

Special accessories

Technical data		WL45-	R250	R260									
Scanning range , max. typ./on reflector	0.01...55 m/OP 60												
Sensitivity	Adjustable												
Light source¹⁾, light type	LED, visible red light												
Light spot diameter	Approx. 230 mm at 16 m												
Supply voltage V_S	24...240 V UC (+ 10 %, - 25 %)												
Power consumption	≤ 3 VA												
	≤ 6 VA, front lens heating												
Switching outputs	Relay, SPDT, isolated ²⁾												
Max. switching voltage	AC: 250 V / DC: 120 V												
Switching current	4 A / 240 V AC or 24 V DC ³⁾												
Max. switching capacity	AC: 1000 VA / DC: 100 W												
Response time	≤ 20 ms												
Max. switching frequency ⁴⁾	10/s												
Connection type	Terminal connection												
VDE protection class	⊕												
Circuit protection⁵⁾	A, C												
Enclosure rating	IP 67												
Ambient temperature T_A	Operation - 25 °C...+ 55 °C ⁶⁾												
	Storage - 40 °C...+ 70 °C												
Weight	Approx. 800 g												
Front lens heating													
Polarising filter													
Housing material	Metal housing												

- 1) Average service life 100,000 h at T_A = + 25 °C
 2) Provide suitable spark suppression for inductive or capacitive loads
 3) Usage Category to EN 60947-1, 15 AC, 13 DC
 4) With light/dark ratio 1:1
 5) A = V_S connections reverse-polarity protected
 C = Interference pulse suppression
 6) Up to 140 °C with cooling plates (see Accessories)

Scanning range and operating reserve		Order information	
Type	Order no.		
WL45-R250	1008841		
WL45-R260	1008562		

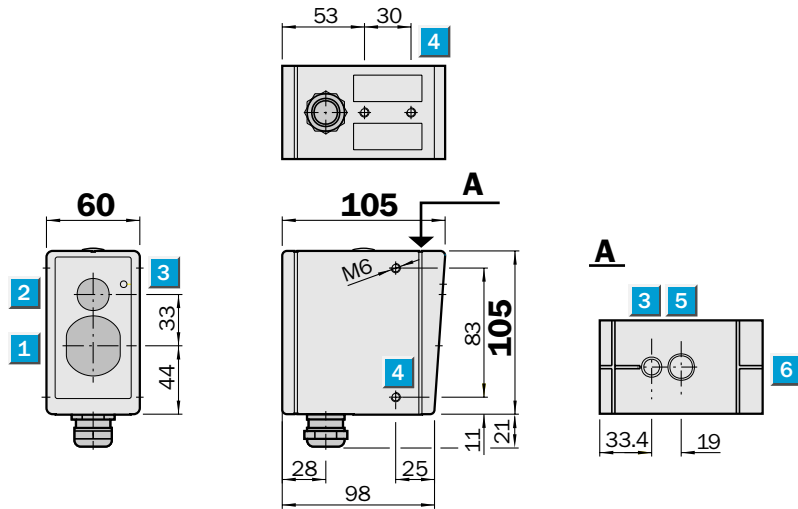
Reflector type	Operating range
1 OP 60 - ∞	1 ... 45 m
2 4 x PL 80	0,01 ... 28 m
3 PL 80 A	0,01 ... 25 m
4 C 110	0.1 ... 15 m
5 PL 50	0,01 ... 11 m
6 PL 30	0,01 ... 9 m
7 Reflective tape Diamond Grade	0.3 ... 8 m

Scanning range
0 ... 350 m

Through-beam photoelectric switches

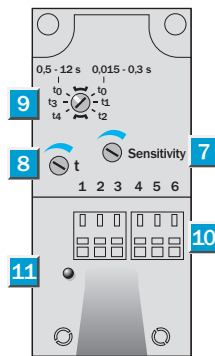
- Robust metal housing
- Red light, very long range
- Adjustable sensitivity
- Front lens heating, optional
- Pre-failure signalling output

Dimensional drawing



Adjustments possible

- WS/WE45-P250
- WS/WE45-P260
- WS/WE45-N250
- WS/WE45-N260



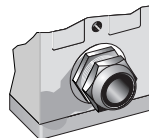
- 1 Centre of optical axis, sender (WS)
Centre of optical axis, receiver (WE)
- 2 View finder lens
- 3 LED signal strength indicator
- 4 M6 threaded mounting hole – 8 mm deep
- 5 Eyepiece for alignment aid
- 6 Alignment sight
- 7 Sensitivity adjustment
- 8 Time adjustment
- 9 Time delay selector switch
- 10 Terminal strip
- 11 Status indicator

Switch-selectable time delay

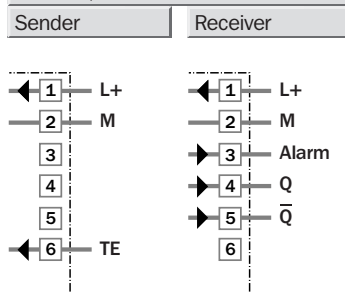
0.5 – 12 s	0.015 – 0.3 s
t_0 without time delay	t_0 without time delay
t_3 ON-delay when object enters detection zone	t_1 ON-delay when object enters detection zone
t_4 OFF-delay when object leaves detection zone	t_2 OFF-delay when object leaves detection zone

Connection type

- WS/WE45-P250
- WS/WE45-P260
- WS/WE45-N250
- WS/WE45-N260



PG 13.5; terminals



See chapter Accessories

- Mounting systems
- Special accessories



Technical data		WS/WE45-	P250	P260	N250	N260						
Scanning range, max. typical	0...350 m											
Sensitivity	Adjustable											
Light source¹⁾, light type	LED, infrared light											
Light spot diameter	Approx. 4.5 m at 300 m											
Angle of dispersion	Approx. 0.9°											
Supply voltage V_S	10...60 V DC ²⁾											
Residual ripple ³⁾	< 5 V _{SS}											
Current consumption⁴⁾												
sender without heating	≤ 50 mA											
sender with heating	≤ 250 mA											
receiver without heating	≤ 50 mA											
receiver with heating	≤ 250 mA											
Switching outputs	PNP, Q and \bar{Q}											
	NPN, Q and \bar{Q}											
Output current I _A max.	200 mA											
Response time ⁵⁾	≤ 500 μs											
Max. switching frequency ⁶⁾	1000/s											
Pre-failure signalling output	Alarm											
Max. output current I _{Alarm}	100 mA, open collector											
Insufficient light received	Flashes at approx. 5/s, switch to V _S											
(Reserve < 50 %)												
Test input »TE«, sender OFF	PNP: Test input to 0 V											
Connection type	Terminal connection											
VDE protection class	⊕											
Circuit protection⁷⁾	A, B, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation - 25 °C...+ 55 °C ⁸⁾											
	Storage - 40 °C...+ 70 °C											
Weight	Approx. 800 g											
Front lens heating												
Housing material	Metal housing											

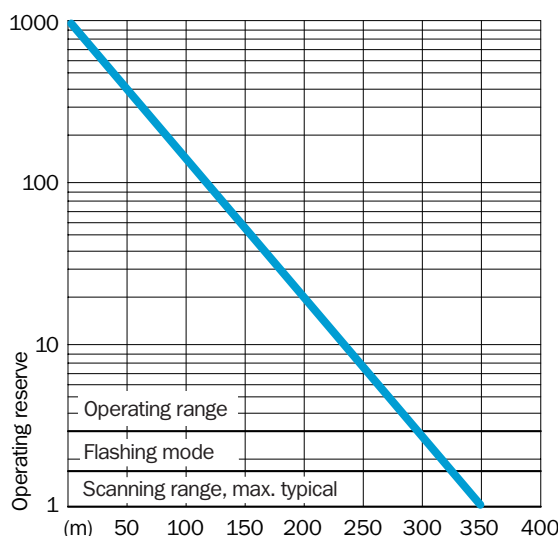
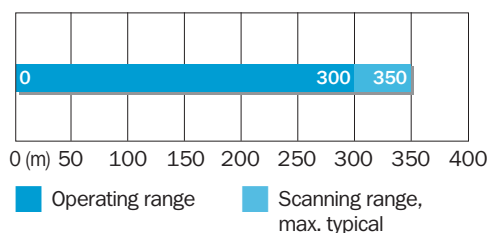
- 1) Average service life 100,000 h at T_A = + 25 °C
- 2) Limit values
- 3) May not exceed or fall short of V_S tolerances

- 4) Without load
- 5) Signal transit time with resistive load
- 6) With light/dark ratio 1:1

- 7) A = V_S connections reverse-polarity protected
- B = Output Q and \bar{Q} short-circuit protected
- C = Interference pulse suppression

- 8) Up to 140 °C with cooling plates (see Accessories)

Scanning range and operating reserve



Order information

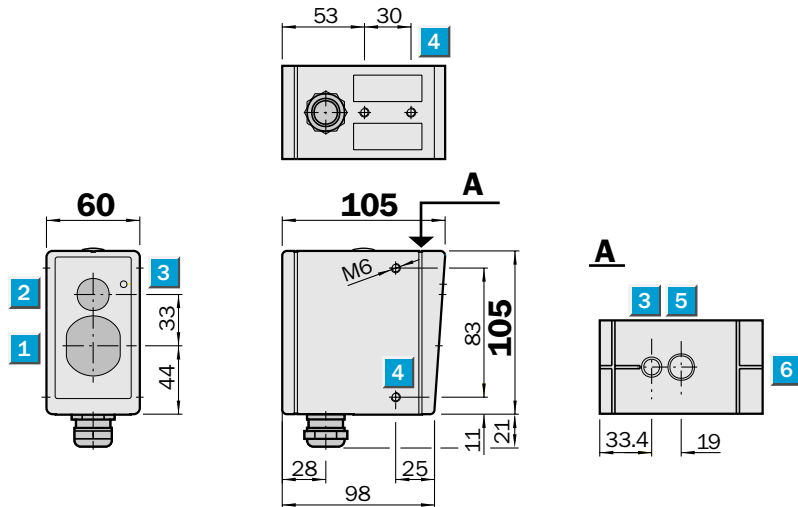
Type	Order no.
WS/WE45-P250	1010983
WS/WE45-P260	1010985
WS/WE45-N250	1010982
WS/WE45-N260	1010984

Scanning range
0 ... 350 m

Through-beam photoelectric switches

- Robust metal housing
- Red light, very long range
- Adjustable sensitivity
- Front lens heating, optional

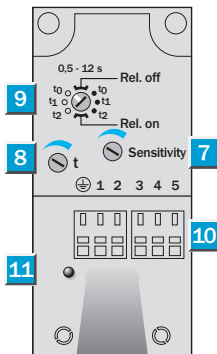
Dimensional drawing



Adjustments possible

WS/WE45-R250

WS/WE45-R260



- 1 Centre of optical axis, sender (WS)
Centre of optical axis, receiver (WE)
- 2 View finder lens
- 3 LED signal strength indicator
- 4 M6 threaded mounting hole – 8 mm deep
- 5 Eyepiece for alignment aid
- 6 Alignment sight
- 7 Sensitivity adjustment
- 8 Time adjustment
- 9 Time delay selector switch
left: light-switching, right: dark-switching
- 10 Terminal strip
- 11 Status indicator

Switch-selectable time delay

0.5 – 12 s

t_0 without time delay

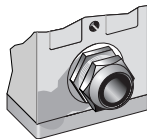
t_1 ON-delay when object enters detection zone

t_2 OFF-delay when object leaves detection zone

Connection type

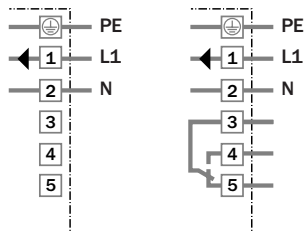
WS/WE45-R250

WS/WE45-R260



PG 13.5; terminals

Sender Receiver



See chapter Accessories

Mounting systems

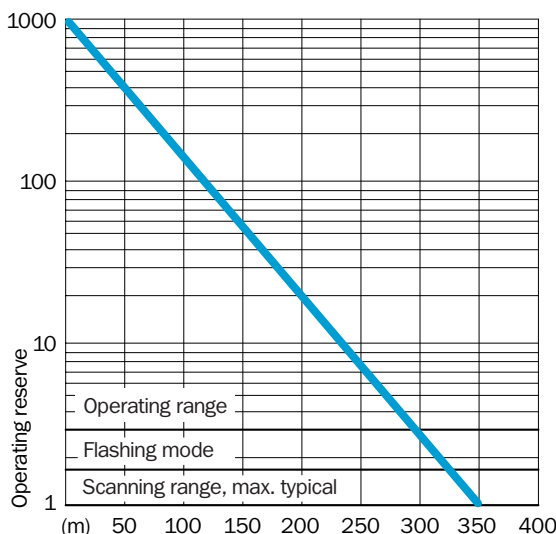
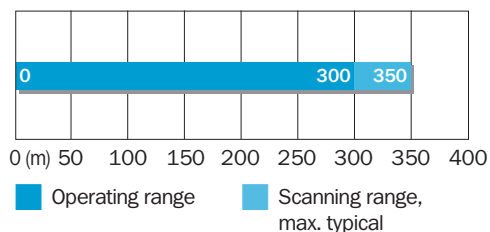
Special accessories



Technical data		WS/WE45-	R250	R260								
Scanning range, max. typical	0...350 m											
Sensitivity	Adjustable											
Light source¹⁾, light type	LED, infrared light, pulsating											
Light spot diameter	Approx. 4.5 m at 300 m											
Angle of dispersion	Approx. 0.9°											
Supply voltage V_S	24...240 V UC (+ 10 %, - 25 %)											
Power consumption												
sender without heating	≤ 3 VA											
sender with heating	≤ 6 VA											
receiver without heating	≤ 3 VA											
receiver with heating	≤ 6 VA											
Switching outputs	Relay, SPDT, isolated ²⁾											
Max. switching voltage	AC: 250 V / DC: 120 V											
Switching current	4 A / 240 V AC o. 24 V DC ³⁾											
Max. switching capacity	AC: 1000 VA / DC: 100 W											
Response time	≤ 10 ms											
Max. switching frequency ⁴⁾	10/s											
Connection type	Terminal connection											
VDE protection class	⊕											
Circuit protection⁵⁾	A, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation - 25 °C...+ 55 °C ⁶⁾											
	Storage - 40 °C...+ 70 °C											
Weight	Approx. 800 g											
Front lens heating												
Housing material	Metal housing											

- 1) Average service life 100,000 h at T_A = + 25 °C
- 2) Provide suitable spark suppression for inductive or capacitive loads
- 3) Usage Category to EN 60947-1, 15 AC, 13 DC
- 4) With light/dark ratio 1:1
- 5) A = V_S connections reverse-polarity protected
C = Interference pulse suppression
- 6) Up to 140 °C with cooling plates (see Accessories)

Scanning range and operating reserve



Order information	
Type	Order no.
WS/WE45-R250	1010994
WS/WE45-R260	1010995