




W23-2: Focussing on what is essential and economic

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



for 24 V DC or 240 V AC operation, the integration into machinery or systems is made easy. The indicator LEDs on the W23-2 offer 360° allround visibility for improved convenience during set up and operation.

Overview of W23-2:

- “Plug & Play” photoelectric reflex switch,
- Energetic sensor: easy Teach-in, ready to operate in less time,
- Faster monitoring with 360°, visibility for indicator LEDs.

Typical uses:

- Storage and conveying technology,
- Woodworking machinery,
- Doors/gates,
- Applications in automation processes.

The W23-2 series photoelectric switches are geared to applications where economic considerations are particularly important.

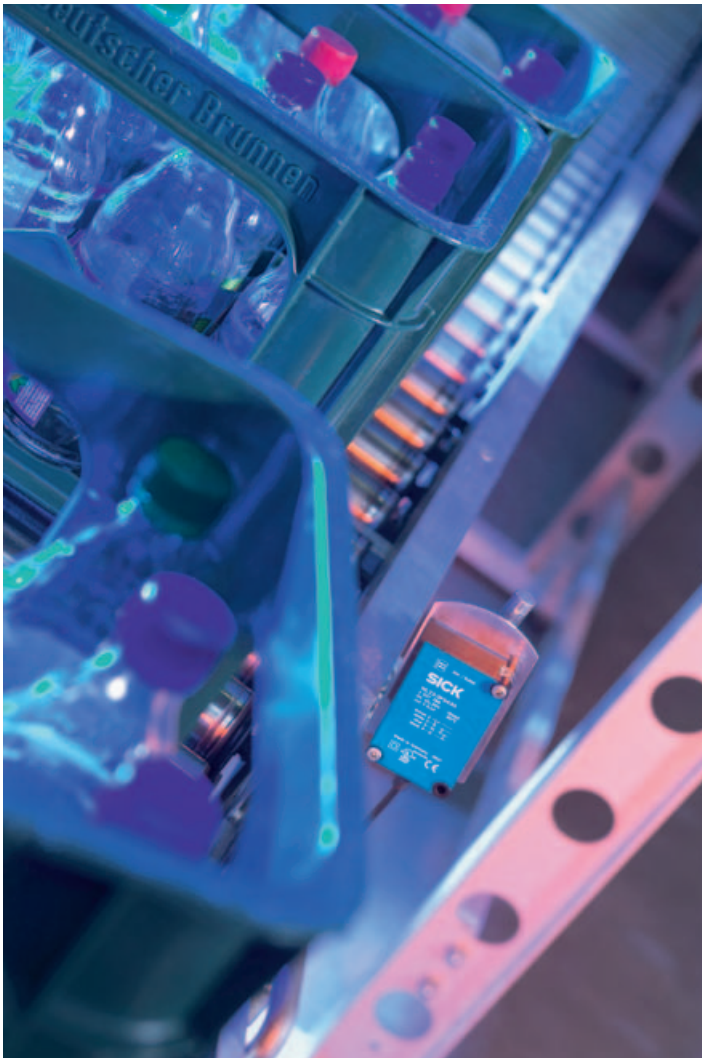
Easy to install and commission, they can be quickly aligned using the high visibility light spot and are ready to operate, enabling customers to “Plug and Play”.

The same applies to the energetic sensor. Within seconds, and at the touch of a button, it is adjusted to an object. Finally, the photoelectric proximity switch with background blanking completes the product range and also benefits from fast adjustment. With standardised connections and two versions

► WL23-2 photoelectric reflex switch reliably detects pallets while directing its visible red light on the reflector.



▼ WL23-2 photoelectric reflex switch detects very variable material to be conveyed, e.g. beverage boxes.



▼ Easy-Teach-in: Put energetic photoelectric proximity switch WTE23-2 quick and easily into function. Align on object, press Teach-in button 4 s, ready.



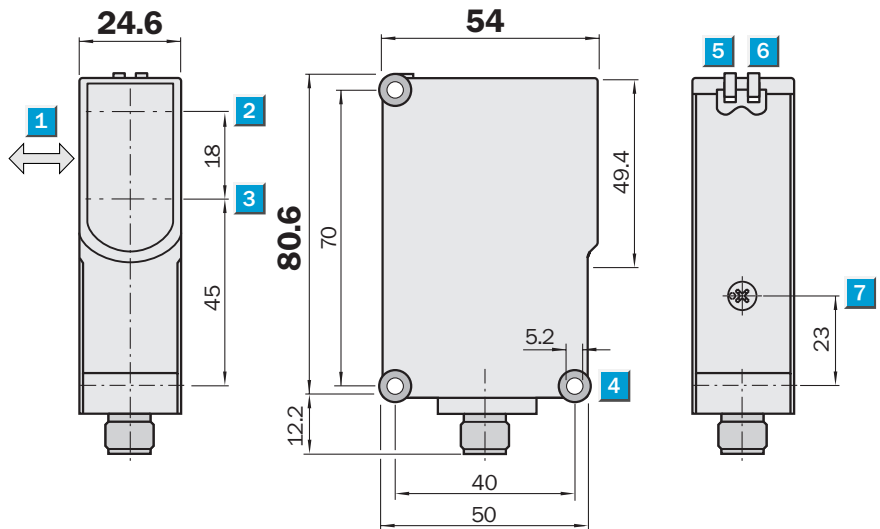
Photoelectric proximity switch, WT23-2, red light, BGB - DC

Scanning distance
50 ... 800 mm

Photoelectric proximity switch

- Background blanking
- Red light, easier alignment
- 360° visibility on indicator LEDs, for faster monitoring

Dimensional drawing



Adjustments possible

WT23-2P2441
WT23-2P3441

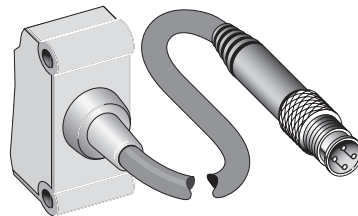
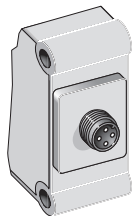
- 1 Standard direction of the material being scanned
- 2 Optical axis sender
- 3 Optical axis receiver
- 4 Mounting hole \varnothing 5.2 mm
- 5 LED indicator green; power on
- 6 LED indicator yellow; status of received light beam
- 7 Scanning distance adjustment: Poti



Connection type

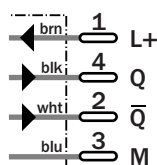
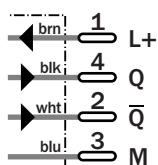
WT23-2P2441

WT23-2P3441



M12, 4-pin

M12, 4-pin



See chapter Accessories

Connector, M12, 4-pin
Mounting systems
Weather protection

Technical data		WT23-2	P2441	P3441								
Scanning distance typ. max.	50 ... 800 mm ¹⁾											
Operating distance	100 ... 800 mm ¹⁾											
Adjustment of operating distance	Potentiometer											
Light source, light type	LED, Red light, 660 nm ²⁾											
Light spot diameter	Approx. 30 mm at 800 mm distance											
Supply voltage V_s	10 ... 30 V DC ³⁾											
Ripple	≤ 5 V _{pp} ⁴⁾											
Power consumption	≤ 30 mA ⁵⁾											
Switching outputs	PNP antivalent											
Signal voltage PNP HIGH / LOW	> V _s - 2.5 V / approx. 0 V											
Output current I _a max	≤ 100 mA											
Response time	≤ 2.5 ms ⁶⁾											
Switching frequency	200 Hz ⁷⁾											
Connection type	Connector, M12, 4-pin											
	Cable with plug, M12, 4-pin, PVC, 270 mm ⁸⁾											
VDE protection class	□ ⁹⁾											
Circuit protection	V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression											
Enclosure rating	IP 65											
Ambient temperature operation	-25 °C ... +60 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 100 g											
	Approx. 120 g											
Housing material	ABS, PMMA											

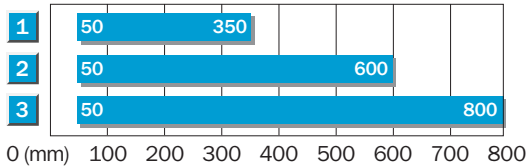
¹⁾ Object with 90% remission (based on standard white to DIN 5033)
²⁾ Average service life 100,000 h

at T_a = +25 °C
³⁾ Limit values, operation in short-circuit protected network max. 8 A

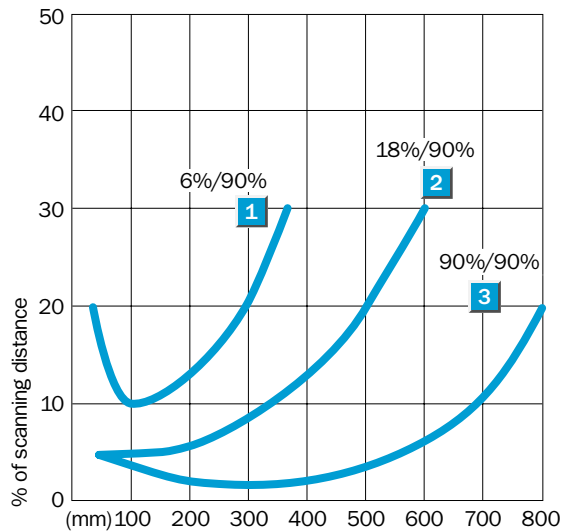
⁴⁾ may not exceed or fall short of V_s tolerances
⁵⁾ without load

⁶⁾ Signal transit time with resistive load
⁷⁾ with light/dark ratio 1:1
⁸⁾ do not bend below 0 °C
⁹⁾ Reference voltage 50 V DC

Scanning distance



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



Order information

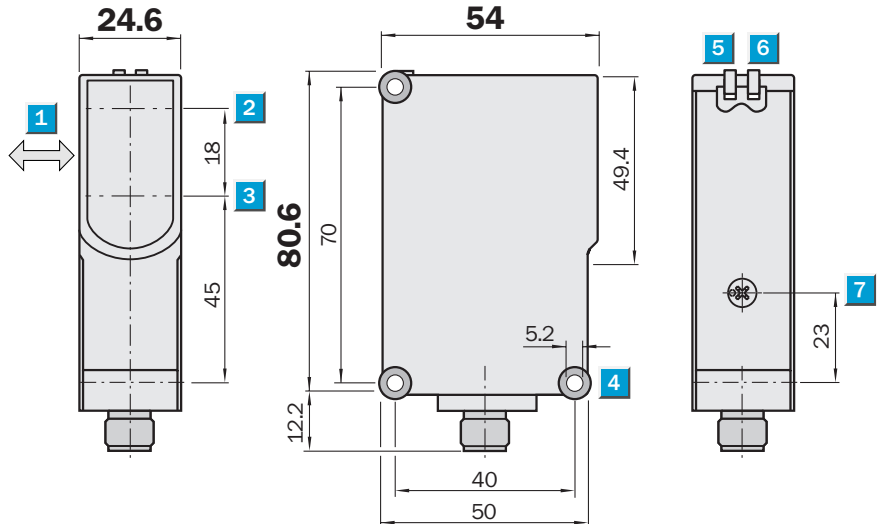
Type	Order no.
WT23-2P2441	1 027 779
WT23-2P3441	1 028 066

Scanning distance
50 ... 1,000 mm

Photoelectric proximity switch

- Infrared light, long scanning distance
- Background blanking
- Flexible: 24 V DC or 240 V AC
- 360° visibility on indicator LEDs, for faster monitoring

Dimensional drawing



Adjustments possible

- WT23-2N2421
- WT23-2P2421
- WT23-2S1521

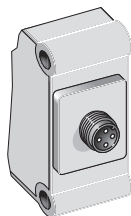
- 1 Standard direction of the material being scanned
- 2 Optical axis sender
- 3 Optical axis receiver
- 4 Mounting hole \varnothing 5.2 mm
- 5 LED indicator green; power on
- 6 LED indicator yellow; status of received light beam
- 7 Scanning distance adjustment: Poti



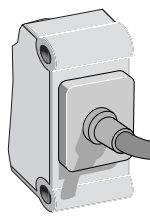
Connection type

- WT23-2N2421
- WT23-2P2421

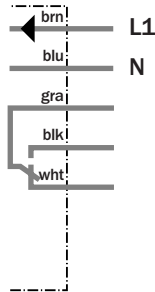
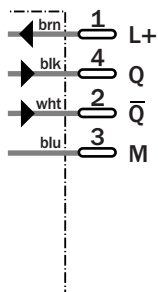
WT23-2S1521



M12, 4-pin



5 x 0.25 mm²



See chapter Accessories*

- Connector, M12, 4-pin
- Mounting systems
- Weather protection

*Recommendation for connectors



Technical data		WT23-2	N2421	P2421	S1521							
Scanning distance typ. max.	50 ... 1,000 mm ¹⁾											
Operating distance	100 ... 1,000 mm ¹⁾											
Adjustment of operating distance	Potentiometer											
Light source, light type	LED, Infrared light, 880 nm ²⁾											
Light spot diameter	Approx. 50 mm at 800 mm distance											
Supply voltage V _s	10 ... 30 V DC ³⁾											
	90 ... 265 V AC ⁴⁾											
Ripple	≤ 5 V _{pp} ⁵⁾											
Power consumption	≤ 35 mA ⁶⁾											
Switching outputs	NPN antivalent											
	PNP antivalent											
	Relay 1 x c/o, electrically isolated ⁷⁾											
Switching mode	Light-switching											
Signal voltage PNP HIGH / LOW	> V _s - 2.5 V / approx. 0 V											
Signal voltage NPN HIGH / LOW	Approx. V _s / < 2.5 V											
Output current I _a max	≤ 100 mA											
Power consumption	≤ 2.5 VA											
Max. switching voltage	250 V AC / 250 V DC (max. 0.11A)											
Switching current max.	3 A @ 250 V AC or 24 V DC ⁸⁾											
Max. switching power	750 W AC / 72 W DC											
Response time	≤ 2.5 ms ⁹⁾											
	≤ 10 ms											
Switching frequency	200 Hz ¹⁰⁾											
	10 Hz ¹⁰⁾											
Connection type	Connector, M12, 4-pin											
	Cable, PVC, 2 m ¹¹⁾											
VDE protection class	□ ¹²⁾											
	□ ¹³⁾											
Circuit protection	V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression											
	V _s connections reverse-polarity protected / Interference suppression											
Enclosure rating	IP 65											
Ambient temperature operation	-25 °C ... +60 °C											
	-25 °C ... +60 °C ¹⁴⁾											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 100 g											
	Approx. 200 g											
Housing material	ABS, PMMA											

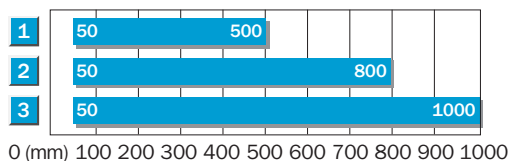
¹⁾ Object with 90% remission (based on standard white to DIN 5033)
²⁾ Average service life 100,000 h at T_a = +25°C
³⁾ Limit values, operation in short-circuit

protected network max. 8 A
⁴⁾ Limit values
⁵⁾ may not exceed or fall short of V_s tolerances
⁶⁾ without load

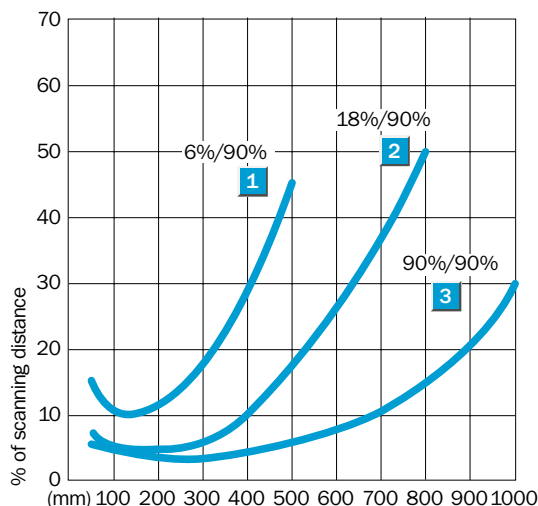
⁷⁾ Provide suitable spark suppression for inductive or capacitive loads
⁸⁾ Usage category to EN 60947-1, AC-15, DC-13
⁹⁾ Signal transit time with resistive load

¹⁰⁾ with light/dark ratio 1:1
¹¹⁾ do not bend below 0 °C
¹²⁾ Reference voltage 50 V DC
¹³⁾ Reference voltage 250 V AC
¹⁴⁾ UL: 0°C ... +60°C


Scanning distance



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

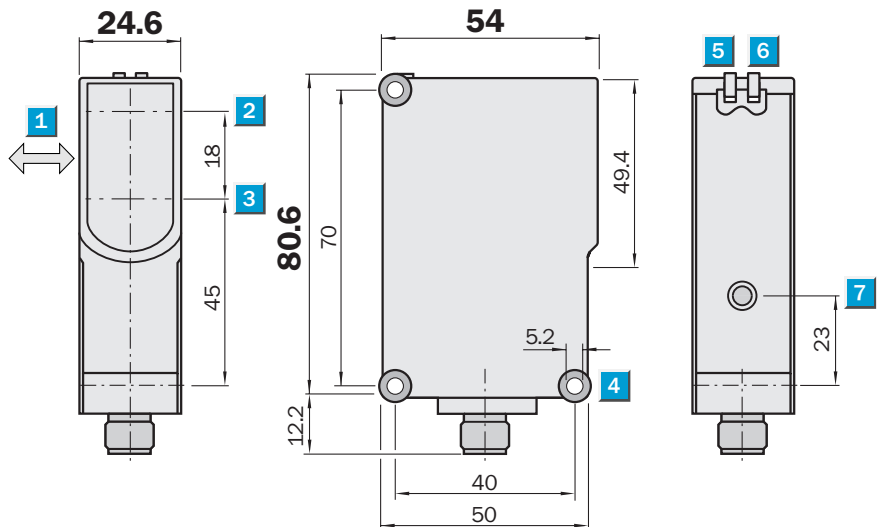


Order information	
Type	Order no.
WT23-2N2421	1 028 073
WT23-2P2421	1 027 778
WT23-2S1521	1 027 780


Scanning distance
 50 ... 2,300 mm
Photoelectric proximity switch

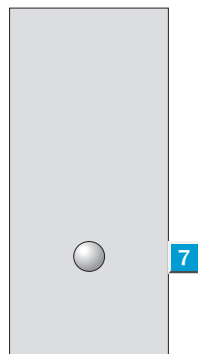
- Easy Teach-in, ready to operate in less time
- Infrared light, long scanning distance
- 360° visibility on indicator LEDs, for faster monitoring

Dimensional drawing



Adjustments possible

WTE23-2N2412
WTE23-2P2412

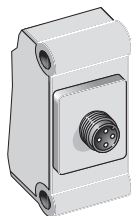


- 1** Standard direction of the material being scanned
- 2** Optical axis sender
- 3** Optical axis receiver
- 4** Mounting hole \varnothing 5.2 mm
- 5** LED indicator green; power on
- 6** LED indicator yellow; status of received light beam
- 7** Scanning distance adjustment: single teach button

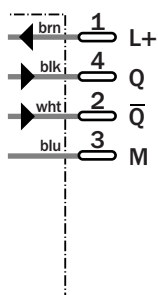


Connection type

WTE23-2N2412
WTE23-2P2412



M12, 4-pin



See chapter Accessories
 Connector, M12, 4-pin
 Mounting systems
 Weather protection

Technical data		WTE23-2	N2412	P2412								
Scanning distance typ. max.	50 ... 2,300 mm ¹⁾											
Operating distance	300 ... 2,000 mm ¹⁾											
Adjustment of operating distance	Teach-in: single teach button											
Light source, light type	LED, Infrared light, 880 nm ²⁾											
Light spot diameter	Approx. 160 mm at 2000 mm distance											
Supply voltage V_s	10 ... 30 V DC ³⁾											
Ripple	$\leq 5 V_{pp}$ ⁴⁾											
Power consumption	$\leq 35 \text{ mA}$ ⁵⁾											
Switching outputs	NPN antivalent											
	PNP antivalent											
Signal voltage PNP HIGH / LOW	$> V_s - 2.5 \text{ V}$ / approx. 0 V											
Signal voltage NPN HIGH / LOW	Approx. $V_s / < 2.5 \text{ V}$											
Output current I_a max	$\leq 100 \text{ mA}$											
Response time	$\leq 2.5 \text{ ms}$ ⁶⁾											
Switching frequency	200 Hz ⁷⁾											
Connection type	Connector, M12, 4-pin											
VDE protection class	\square ⁸⁾											
Circuit protection	V_s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression											
Enclosure rating	IP 65											
Ambient temperature operation	-25 °C ... +60 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 100 g											
Housing material	ABS, PMMA											

¹⁾ Object with 90% remission (based on standard white to DIN 5033)

²⁾ Average service life 100,000 h

at $T_a = +25^\circ\text{C}$

³⁾ Limit values, operation in short-circuit protected network max. 8 A

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⁾ Reference voltage 50 V DC

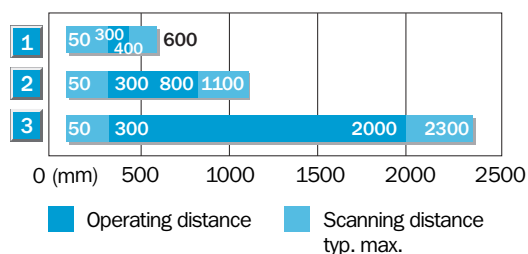
Teach-in function

Programming via Teach-in button.

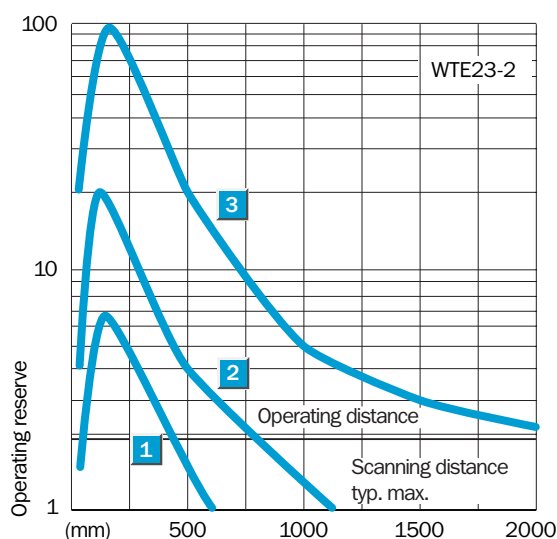
Position object in the light beam and push the teach-in button (< 4s), (approx. double reserve over switching threshold); adjustment is completed.

Yellow LED light and Teach-in value is stored.

Scanning distance




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



Order information

Type	Order no.
WTE23-2N2412	1 027 782
WTE23-2P2412	1 027 781

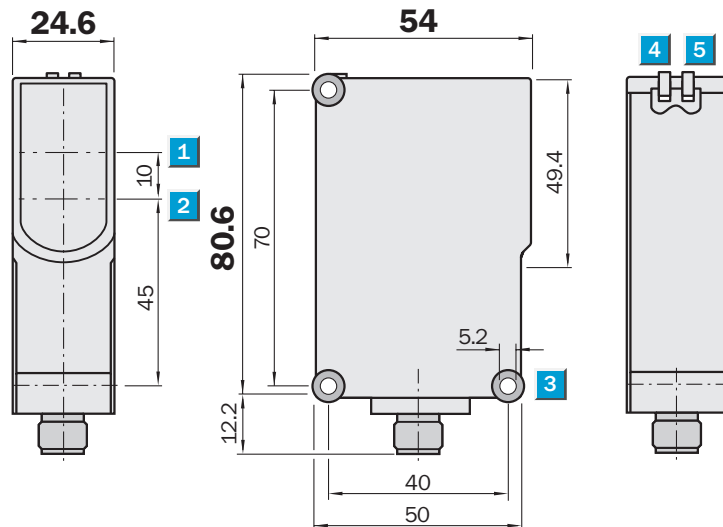
Photoelectric reflex switch, WL23-2, red light - DC


Scanning range
0.1 ... 10 m

Photoelectric reflex switch

- "Plug & Play", ready to operate in less time
- Excellent alignment to reflector
- Polarisation filter: safe detection even with shiny surfaces

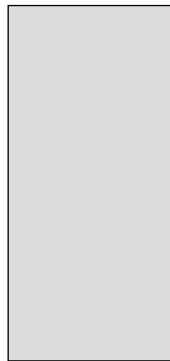
Dimensional drawing



Adjustments possible

- WL23-2N2430
- WL23-2P1130
- WL23-2P2430
- WL23-2P3430

- 1 Optical axis sender
- 2 Optical axis receiver
- 3 Mounting hole \varnothing 5.2 mm
- 4 LED indicator green; power on
- 5 LED indicator yellow; status of received light beam

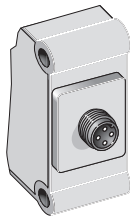


Connection type

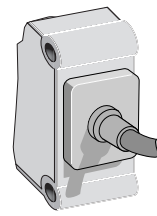
- WL23-2N2430
- WL23-2P2430

WL23-2P1130

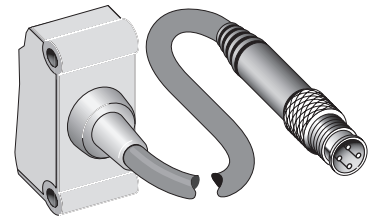
WL23-2P3430



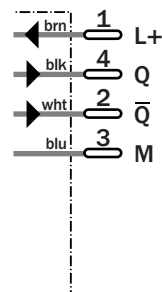
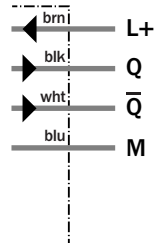
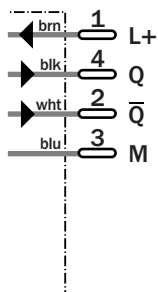
M12, 4-pin



4 x 0.25 mm²



M12, 4-pin



See chapter Accessories

- Connector, M12, 4-pin
- Mounting systems
- Reflectors
- Weather protection

Technical data		WL23-2	N2430	P1130	P2430	P3430							
Scanning range typ. max.	0.1 ... 10 m												
Scanning range, recommended	0.3 ... 7 m												
Relating to	Reflector PL80 A												
Light source, light type	LED, Red light, 660 nm ¹⁾												
Light spot diameter	Approx. 45 mm at 2.7 m distance												
Angle of dispersion	Approx. 1.5 °												
Polarisation filter	✓												
Supply voltage V _s	10 ... 30 V DC ²⁾												
Ripple	≤ 5 V _{PP} ³⁾												
Power consumption	≤ 35 mA ⁴⁾												
Switching outputs	NPN antivalent												
	PNP antivalent												
Signal voltage PNP HIGH / LOW	> V _s - 2.5 V / approx. 0 V												
Signal voltage NPN HIGH / LOW	Approx. V _s / < 2.5 V												
Output current I _a max	≤ 100 mA												
Response time	≤ 2.5 ms ⁵⁾												
Switching frequency	200 Hz ⁶⁾												
Connection type	Connector, M12, 4-pin												
	Cable, PVC, 2 m ⁷⁾												
	Cable with plug, M12, 4-pin, PVC, 270 mm ⁷⁾												
VDE protection class	□ ⁸⁾												
Circuit protection	V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression												
Enclosure rating	IP 65												
Ambient temperature operation	-25 °C ... +60 °C												
Ambient temperature storage	-40 °C ... +70 °C												
Weight	Approx. 100 g												
	Approx. 180 g												
	Approx. 120 g												
Housing material	ABS, PMMA												

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

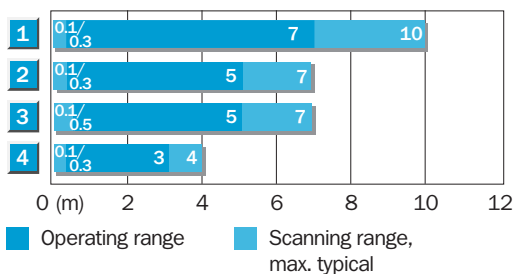
²⁾ Limit values, operation in short-circuit

³⁾ protected network max. 8 A may not exceed or fall short of

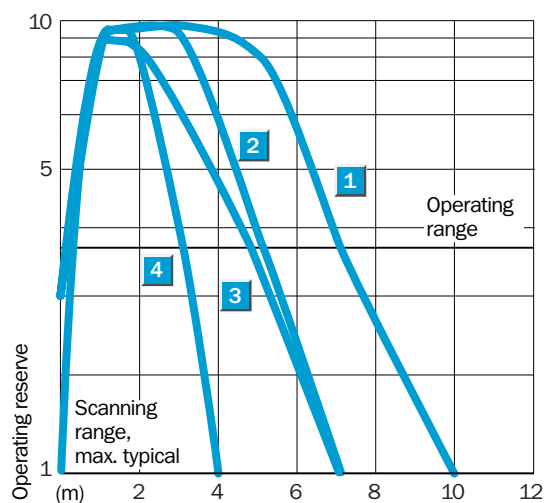
V_s tolerances
⁴⁾ without load
⁵⁾ Signal transit time with resistive load

⁶⁾ with light/dark ratio 1:1
⁷⁾ do not bend below 0 °C
⁸⁾ Reference voltage 50 V DC

Scanning range and operating reserve




Reflector type	Operating range
1 PL 80 A	0.3 ... 7.0 m
2 PL 40 A	0.3 ... 5.0 m
3 C 110	0.5 ... 5.0 m
4 PL 20 A	0.3 ... 3.0 m



Order information

Type	Order no.
WL23-2N2430	1 027 787
WL23-2P1130	1 027 784
WL23-2P2430	1 027 785
WL23-2P3430	1 027 786

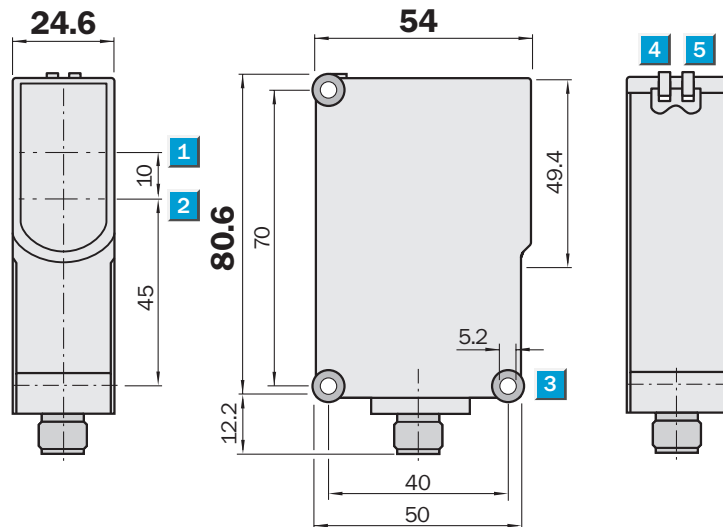
Photoelectric reflex switch, WL23-2, red light - AC


Scanning range
0.1 ... 10 m

Photoelectric reflex switch

- "Plug & Play": AC version (240 V)
- Excellent alignment to reflector
- Polarisation filter: safe detection even with shiny surfaces

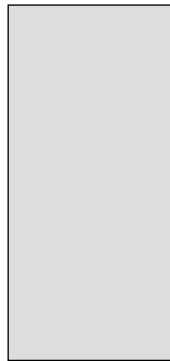
Dimensional drawing



Adjustments possible

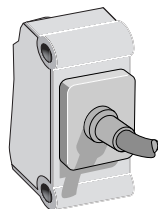
WL23-2S1530
 WL23-2S3730

- 1 Optical axis sender
- 2 Optical axis receiver
- 3 Mounting hole \varnothing 5.2 mm
- 4 LED indicator green; power on
- 5 LED indicator yellow; status of received light beam

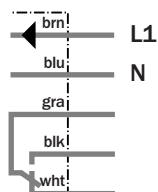


Connection type

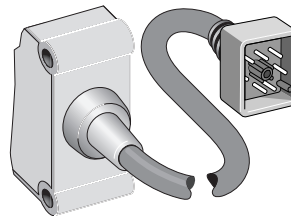
WL23-2S1530



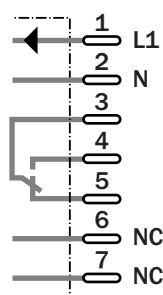
5 x 0.25 mm²



WL23-2S3730



Q7, 7-pin, AC/UC



See chapter Accessories*

- Connector, Q7, 7-pin, UC-coding
- Mounting systems
- Reflectors
- Weather protection

*Recommendation for connectors

AWM Style 2464

Technical data		WL23-2	S1530	S3730									
Scanning range typ. max.	0.1 ... 10 m												
Scanning range, recommended	0.3 ... 7 m												
Relating to	Reflector PL80 A												
Light source, light type	LED, Red light, 660 nm ¹⁾												
Light spot diameter	Approx. 45 mm at 2.7 m distance												
Angle of dispersion	Approx. 1.5 °												
Polarisation filter	✓												
Supply voltage V _s	AC 90 ... 265 V ²⁾												
Switching outputs	Relay 1 x c/o, electrically isolated ³⁾												
Switching mode	Light-switching												
Power consumption	≤ 2.5 VA												
Max. switching voltage	250 V AC / 250 V DC (max. 0.11A)												
Switching current max.	3 A @ 250 V AC or 24 V DC ⁴⁾												
Max. switching power	750 W AC/ 72 W DC												
Response time	≤ 10 ms												
Switching frequency	10 Hz ⁵⁾												
Connection type	Cable, PVC, 2 m ⁶⁾												
	Cable with plug, Q7, 7-pin, AC/UC, PVC, 150 mm ⁶⁾												
VDE protection class	□ ⁷⁾												
Circuit protection	V _s connections reverse-polarity protected / Interference suppression												
Enclosure rating	IP 65												
Ambient temperature operation	-25 °C ... +60 °C ⁸⁾												
Ambient temperature storage	-40 °C ... +70 °C												
Weight	Approx. 200 g												
	Approx. 140 g												
Housing material	ABS, PMMA												

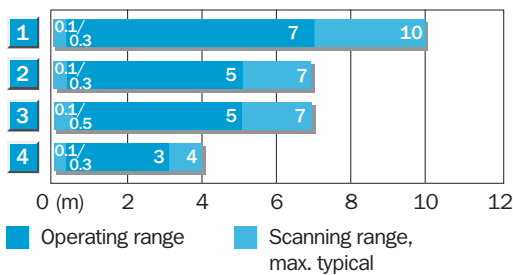
¹⁾ Average service life 100,000 h at T_a = +25 °C
²⁾ Limit values

³⁾ Provide suitable spark suppression for inductive or capacitive loads
⁴⁾ Usage category to EN 60947-1, AC-15,

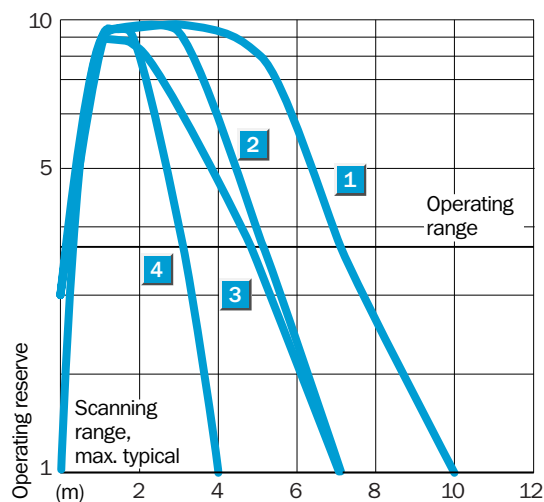
DC-13
⁵⁾ with light/dark ratio 1:1
⁶⁾ do not bend below 0 °C

⁷⁾ Reference voltage 250 V AC
⁸⁾ UL: 0 °C ... +60 °C

Scanning range and operating reserve



Reflector type	Operating range
1 PL 80 A	0.3 ... 7.0 m
2 PL 40 A	0.3 ... 5.0 m
3 C 110	0.5 ... 5.0 m
4 PL 20 A	0.3 ... 3.0 m



Order information	
Type	Order no.
WL23-2S1530	1 027 788
WL23-2S3730	1 027 789