




# W 18-2: Integrated state-of-the-art technology for intelligent solutions

	Photoelectric proximity switches, BGS
	Photoelectric reflex switches
	Through-beam photoelectric switches



Furthermore, the devices also incorporate a large number of features that are usually only found in special versions, e.g. the test input of the WS/WE 18-2 and WL 18-2, the adjustable scanning distance with background suppression of the WTV 18-2, individual plugs, or status LEDs as signal strength indicators, alignment aids, or pre-failure signalling output.

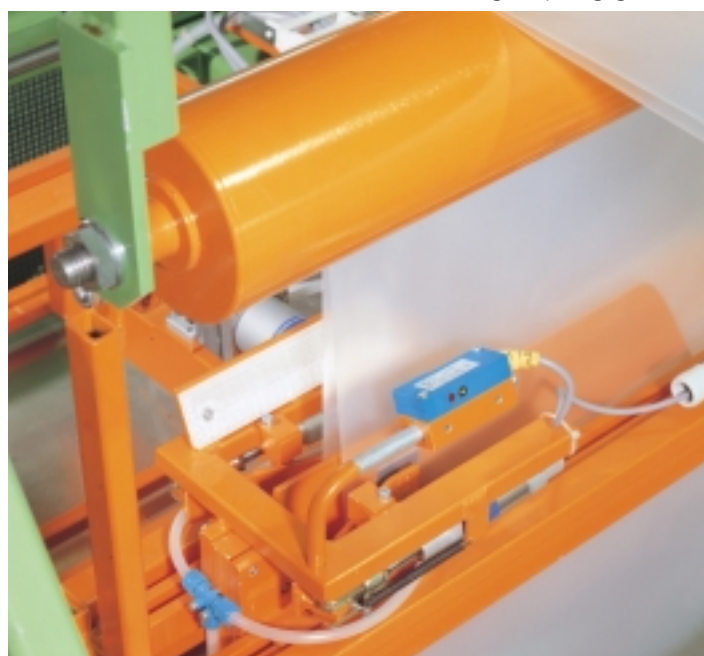
The WTV 18-2 photoelectric proximity switch has been specially developed for and with the packaging industry. Its features include: its broad optical basis, internally adjustable optics, state-of-the-art electronics, powerful background suppression and optimised light spot geometry which together provide a previously unattainable level of immunity against ambient reflections. The detection of plastic bags on a conveyor belt, glossy and differently sized coffee packets or drinks cartons before being packed, cakes packed in plastic film on a stainless steel chain conveyor, or drinking straws attached to drinks containers – all of these tasks can be mastered without any problem with the WTV 18-2.

**T**he W 18-2 series of photoelectric switches is ideal for handling systems as well as for packaging machines and other complex tasks. WT 18-2 photoelectric proximity switches, WL 18-2 photoelectric reflex switches, or WS/WE 18-2 through-beam photoelectric switches – thanks to their glass-fibre-reinforced and fully welded plastic housing, all of these sensors have the robustness required for industrial applications. Extremely large scanning ranges are an additional feature: up to 20 metres for the through-beam photoelectric switch, up to 7 metres for the photoelectric reflex switch and 600 mm or 700 mm for the photoelectric proximity switch (depending on whether a red light or infrared light source is used).



◀ WTV 18-2 sensors used to check the presence of objects along the individual lanes of a packaging line for packs of coffee.


▼ Transparency poses no problems: the WL 18-2 photoelectric reflex switch monitors the edges of packaging film.



▲ Is the packaging unit complete? WT 18-2 photoelectric proximity switches provide us the answer.



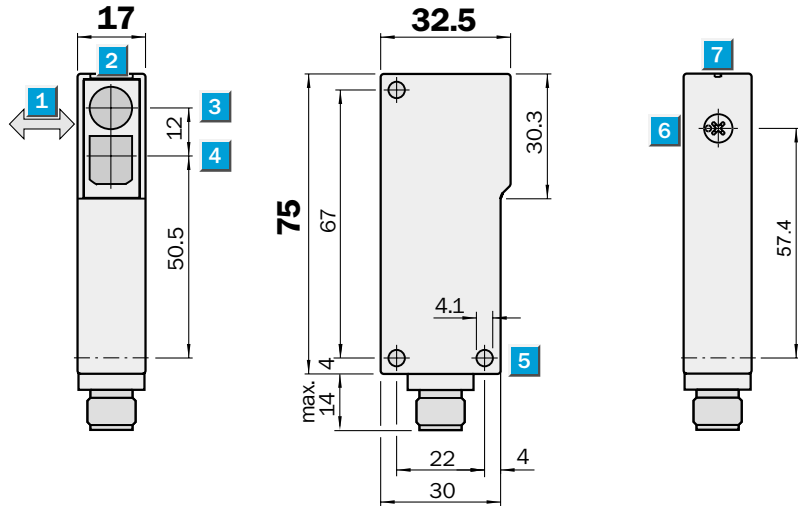
► Leak test for plastic bottles: WT 18-2 sensors used to check the presence of test objects in the automatic machine.


**Scanning distance**  
 50... 700 mm

Photoelectric proximity switches

- Adjustable background suppression
- Insensitive to ambient light sources (HF lamps, flashing alarm lamps)
- No mutual interference if devices are installed opposite each other
- Operating temperature - 40 °C... + 60 °C
- Fast response time

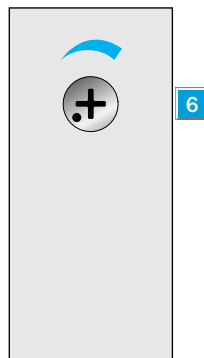
**Dimensional drawing**



**Adjustments possible**

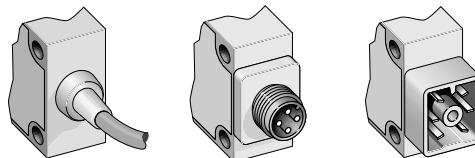
WT 18-2P 112	WT 18-2N 112
WT 18-2P 115	WT 18-2N 115
WT 18-2P 410	WT 18-2N 410
WT 18-2P 610	WT 18-2N 610

- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis, sender
- 4 Optical axis, receiver
- 5 Mounting hole  $\varnothing$  4.1 mm
- 6 Scanning distance adjustment
- 7 Alignment sight



**Connection types**

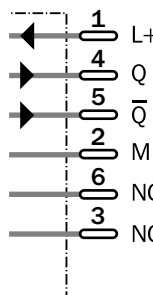
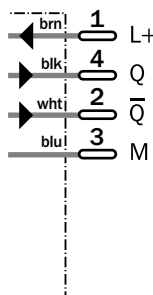
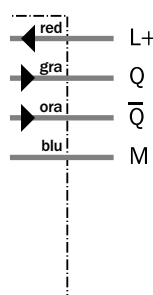
WT 18-2P 112	WT 18-2P 410	WT 18-2P 610
WT 18-2P 115	WT 18-2N 410	WT 18-2N 610
WT 18-2N 112		
WT 18-2N 115		



4 x 2.5 mm<sup>2</sup>

4-pin, M 12

6-pin



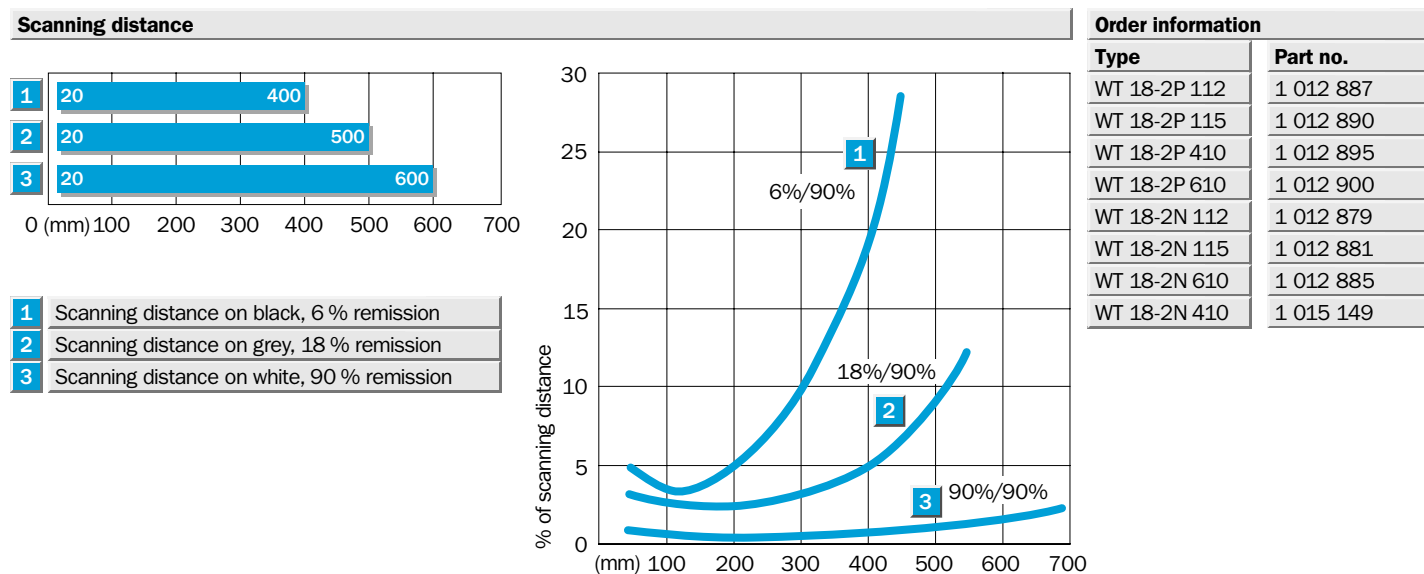
<b>Accessories</b>	page
Cable receptacles	496
Mounting brackets	510

Technical data		WT 18-2	P 112	P 115	P 410	P 610	N 112	N 115	N 410	N 610
<b>Scanning distance</b> , max. typical	50... 700 mm, adjustable									
<b>Light source<sup>1)</sup>, light type</b>	LED, infrared light									
Light spot diameter	20 mm at 400 mm									
<b>Supply voltage <math>V_S</math></b>	10... 30 V DC									
Ripple <sup>3)</sup>	$\leq 5 V_{SS}$									
Current consumption <sup>4)</sup>	$< 25$ mA									
	$< 45$ mA									
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$									
	NPN, Q and $\bar{Q}$									
Output current $I_A$ max.	100 mA									
PNP; signal voltage HIGH	$V_S - (< 2.9$ V)									
PNP; signal voltage LOW	Approx. 0 V									
NPN; signal voltage HIGH	Approx. $V_S$									
NPN; signal voltage LOW	$< 1.5$ V									
Response time <sup>5)</sup>	$< 700$ $\mu$ s									
Max. switching frequency <sup>6)</sup>	700/s									
<b>Connection types</b>	Cable <sup>7)</sup> , 2 m									
	Cable <sup>7)</sup> , 5 m									
	Plug									
<b>VDE protection class<sup>8)</sup></b>	$\square$									
<b>Circuit protection<sup>9)</sup></b>	A, B, C									
<b>Enclosure rating</b>	IP 67									
	IP 65									
<b>Ambient temperature <math>T_A</math></b>	Operation $-40$ $^{\circ}$ C... $+60$ $^{\circ}$ C									
	Storage $-40$ $^{\circ}$ C... $+75$ $^{\circ}$ C									
<b>Weight</b>	Approx. 100 g									
<b>Housing material</b>	ABS, acrylonitrile butadiene styrene									

- 1) Average service life 100,000 h at  $T_A = +25$   $^{\circ}$ 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  $^{\circ}$ C
- 8) Reference voltage 50 V DC

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

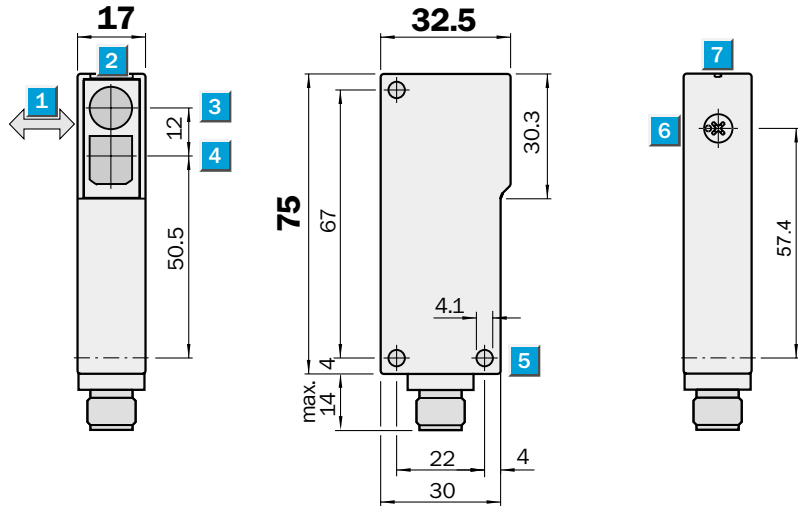


**Scanning distance**  
50... 600 mm

Photoelectric proximity switches

- Adjustable background suppression
- Insensitive to ambient light sources (HF lamps, flashing alarm lamps)
- No mutual interference if devices are installed opposite each other
- Operating temperature - 40 °C... + 60 °C
- Fast response time

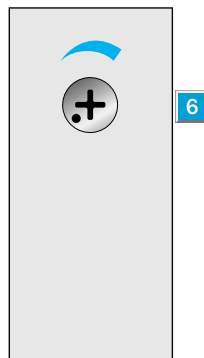
**Dimensional drawing**



**Adjustments possible**

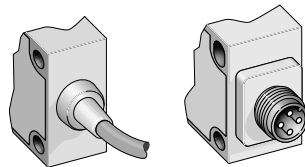
WT 18-2P 132
WT 18-2P 430
WT 18-2N 132
WT 18-2N 430

- Standard direction of the material being scanned
- LED signal strength indicator
- Optical axis, sender
- Optical axis, receiver
- Mounting hole  $\varnothing$  4.1 mm
- Scanning distance adjustment
- Alignment sight

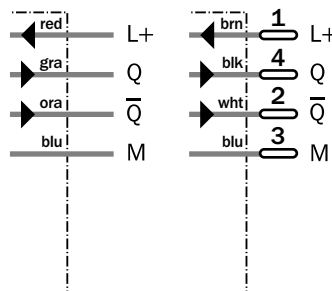


**Connection types**

WT 18-2P 132	WT 18-2P 430
WT 18-2N 132	WT 18-2N 430



4 x 0.25 mm<sup>2</sup>      4-pin, M 12



Accessories	page
Cable receptacles	496
Mounting brackets	510

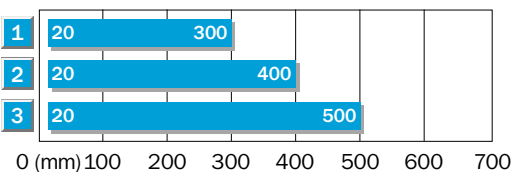
Technical data		WT 18-2	P 132	P 430	N 132	N 430
<b>Scanning distance</b> , max. typical	50...600 mm, adjustable					
<b>Light source<sup>1)</sup>, light type</b>	LED, red light					
Light spot diameter	15 mm at 300 mm					
<b>Supply voltage <math>V_S</math></b>	10...30 V DC					
Ripple <sup>3)</sup>	$\leq 5 V_{SS}$					
Current consumption <sup>4)</sup>	$< 25$ mA					
	$< 35$ mA					
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$					
	NPN, Q and $\bar{Q}$					
Output current $I_A$ max.	100 mA					
PNP; signal voltage HIGH	$V_S - (< 2.9$ V)					
PNP; signal voltage LOW	Approx. 0 V					
NPN; signal voltage HIGH	Approx. $V_S$					
NPN; signal voltage LOW	$< 1.5$ V					
Response time <sup>5)</sup>	$< 700$ $\mu$ s					
Max. switching frequency <sup>6)</sup>	700/s					
<b>Connection types</b>	Cable <sup>7)</sup> , 2 m					
	Plug					
<b>VDE protection class<sup>8)</sup></b>	<input type="checkbox"/>					
<b>Circuit protection<sup>9)</sup></b>	A, B, C					
<b>Enclosure rating</b>	IP 67					
<b>Ambient temperature <math>T_A</math></b>	Operation $-40$ °C... $+60$ °C					
	Storage $-40$ °C... $+75$ °C					
<b>Weight</b>	Approx. 100 g					
<b>Housing material</b>	ABS, acrylonitrile butadiene styrene					

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

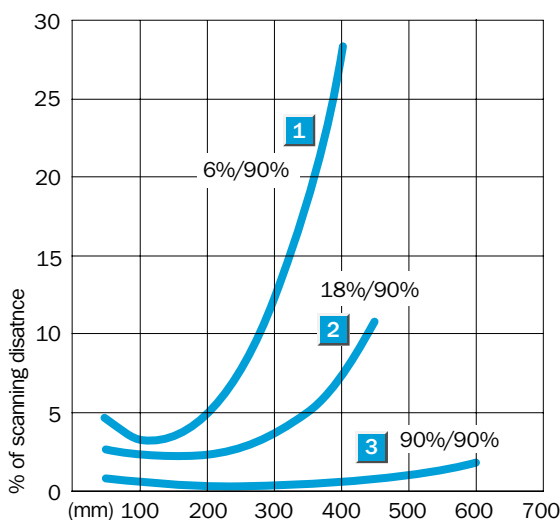
- 4) Without load
- 5) Signal transit time with resistive load
- 6) With light/dark ratio 1:1
- 7) Do not bend below 0 °C
- 8) Reference voltage 50 V DC

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

**Scanning distance**

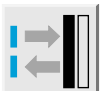


- 1 Scanning distance on black, 6 % remission
- 2 Scanning distance on grey, 18 % remission
- 3 Scanning distance on white, 90 % remission



**Order information**

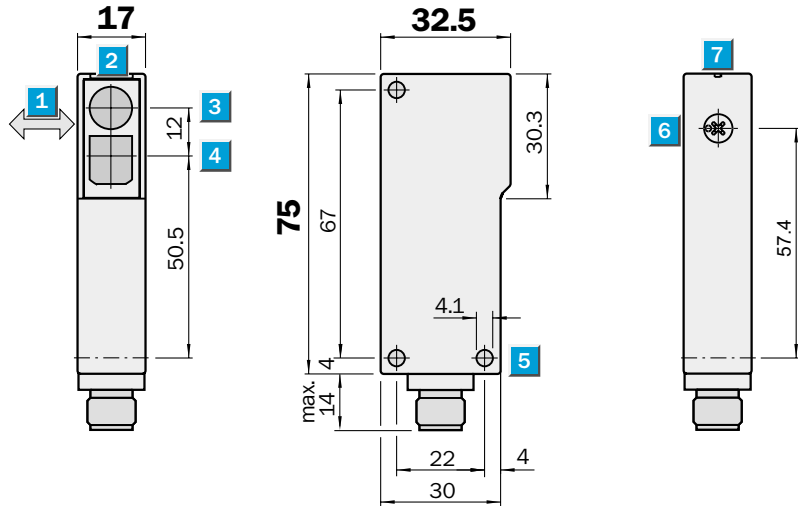
Type	Part no.
WT 18-2P 132	1 012 892
WT 18-2P 430	1 012 897
WT 18-2N 132	1 012 882
WT 18-2N 430	1 012 884

 **Scanning distance**  
50...250 mm

Photoelectric proximity switches

- Adjustable background suppression
- Insensitive to ambient light sources (HF lamps, flashing alarm lamps)
- No mutual interference if devices are installed opposite each other
- Operating temperature -40 °C...+60 °C
- Fast response time

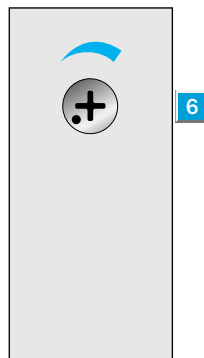
**Dimensional drawing**



**Adjustments possible**

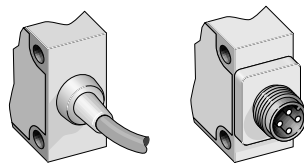
WT 18-2P 172
WT 18-2P 470
WT 18-2P 182
WT 18-2P 480

- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis, sender
- 4 Optical axis, receiver
- 5 Mounting hole  $\varnothing$  4.1 mm
- 6 Scanning distance adjustment
- 7 Alignment sight



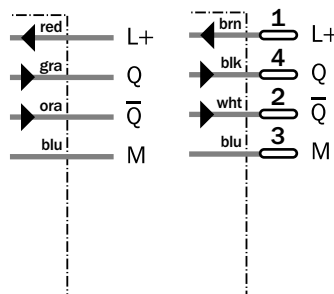
**Connection types**

WT 18-2P 172	WT 18-2P 470
WT 18-2P 182	WT 18-2P 480



4 x 0.25 mm<sup>2</sup>

4-pin, M 12



Accessories	page
Cable receptacles	496
Mounting brackets	510

<b>Technical data</b>	WT 18-2	P 172	P 470	P 182	P 480						
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<b>Scanning distance</b>	50...250 mm, adjustable										
<b>Light source<sup>1)</sup>, light type</b>	LED, red light										
	LED, infrared light										
<b>Light spot diameter</b>	10 mm at 200 mm										
<b>Supply voltage <math>V_S</math></b>	10...30 V DC <sup>2)</sup>										
<b>Ripple<sup>3)</sup></b>	$\leq 5 V_{SS}$										
<b>Current consumption<sup>4)</sup></b>	$< 25 \text{ mA}$										
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$										
<b>Output current <math>I_A</math> max.</b>	100 mA										
<b>PNP; signal voltage HIGH</b>	$V_S - (< 2.9 \text{ V})$										
<b>PNP; signal voltage LOW</b>	Approx. 0 V										
<b>Response time<sup>5)</sup></b>	$< 700 \mu\text{s}$										
<b>Max. switching frequency<sup>6)</sup></b>	700/s										
<b>Connection types</b>	Cable <sup>7)</sup> , 2 m										
	Plug										
<b>VDE protection class<sup>8)</sup></b>	$\square$										
<b>Circuit protection<sup>9)</sup></b>	A, B, C										
<b>Enclosure rating</b>	IP 67										
<b>Ambient temperature <math>T_A</math></b>	Operation $-40 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$										
	Storage $-40 \text{ }^\circ\text{C} \dots +75 \text{ }^\circ\text{C}$										
<b>Weight</b>	Approx. 100 g										
<b>Housing material</b>	ABS, acrylonitrile butadiene styrene										

- |   |   |   |
|---|---|---|
| 1) Average service life 100,000 h at $T_A = +25 \text{ }^\circ\text{C}$ | 4) Without load                                 | 9) A = $V_S$ connections reverse-polarity protected |
| 2) Limit values   | 5) Signal transit time with resistive load      | B = Output Q and $\bar{Q}$ short-circuit protected  |
| 3) May not exceed or fall short of $V_S$ tolerances                     | 6) With light/dark ratio 1:1                    | C = Interference pulse suppression                  |
|   | 7) Do not bend below $0 \text{ }^\circ\text{C}$ |   |
|   | 8) Reference voltage 50 V DC                    |   |

<b>Scanning distance</b>	<b>Order information</b>
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1	10	200
2	10	210
3	10	250

0 (mm)      100      200      300

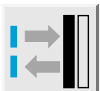
Graph showing % of scanning distance vs (mm) for different remission levels:

- 6%/90% (Curve 1)
- 18%/90% (Curve 2)
- 90%/90% (Curve 3)

Type	Part no.
WT 18-2P 172	1 016 079
WT 18-2P 470	1 016 016
WT 18-2P 182	1 016 266
WT 18-2P 480	1 016 267

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

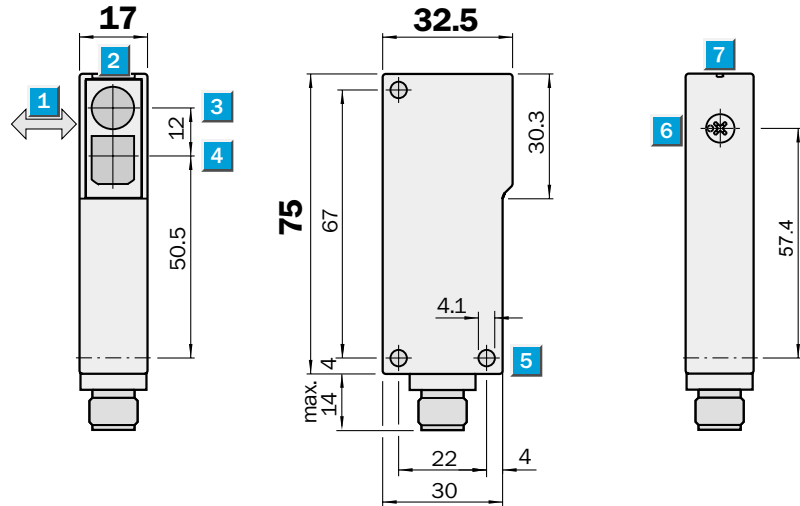



**Scanning distance**  
 50...1000 mm

Photoelectric proximity switches

- Adjustable background suppression
- Insensitive to ambient light sources (HF lamps, flashing alarm lamps)
- No mutual interference if devices are installed opposite each other
- Operating temperature -40 °C...+60 °C
- Fast response time

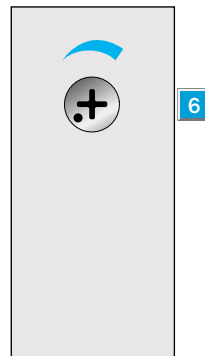
**Dimensional drawing**



**Adjustments possible**

WT 18-2P 122

WT 18-2P 420

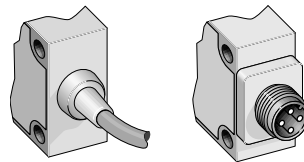


- Standard direction of the material being scanned
- LED signal strength indicator
- Optical axis, sender
- Optical axis, receiver
- Mounting hole  $\varnothing$  4.1 mm
- Scanning distance adjustment
- Alignment sight

**Connection types**

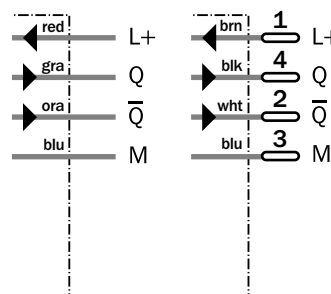
WT 18-2P 122

WT 18-2P 420



4 x 0.25 mm<sup>2</sup>

4-pin, M 12



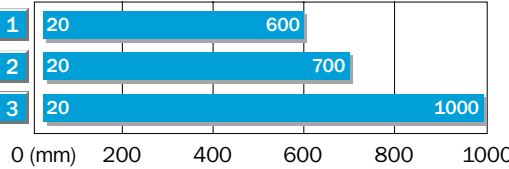
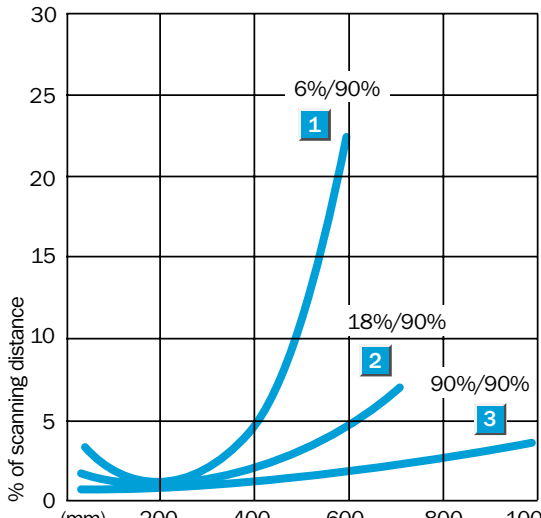
Accessories	page
Cable receptacles	496
Mounting brackets	510

Technical data		WT 18-2	P 172	P 420								
<b>Scanning distance</b>	50...1000 mm, adjustable											
<b>Light source<sup>1)</sup>, light type</b>	LED, infrared light											
Light spot diameter	30 mm at a distance of 600 mm											
<b>Supply voltage <math>V_S</math></b>	10...30 V DC <sup>2)</sup>											
Ripple <sup>3)</sup>	$\leq 5 V_{SS}$											
Current consumption <sup>4)</sup>	$< 25$ mA											
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$											
Output current $I_A$ max.	100 mA											
PNP; signal voltage HIGH	$V_S - (< 2.9$ V)											
PNP; signal voltage LOW	Approx. 0 V											
Response time <sup>5)</sup>	$< 700$ $\mu$ s											
Max. switching frequency <sup>6)</sup>	700/s											
<b>Connection types</b>	Cable <sup>7)</sup> , 2 m											
	Plug											
<b>VDE protection class<sup>8)</sup></b>	$\square$											
<b>Circuit protection<sup>9)</sup></b>	A, B, C											
<b>Enclosure rating</b>	IP 67											
<b>Ambient temperature <math>T_A</math></b>	Operation $-40$ °C... $+60$ °C											
	Storage $-40$ °C... $+75$ °C											
<b>Weight</b>	Approx. 100 g											
<b>Housing material</b>	ABS, acrylonitrile butadiene styrene											

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

- 4) Without load
- 5) Signal transit time with resistive load
- 6) With light/dark ratio 1:1
- 7) Do not bend below 0 °C
- 8) Reference voltage 50 V DC

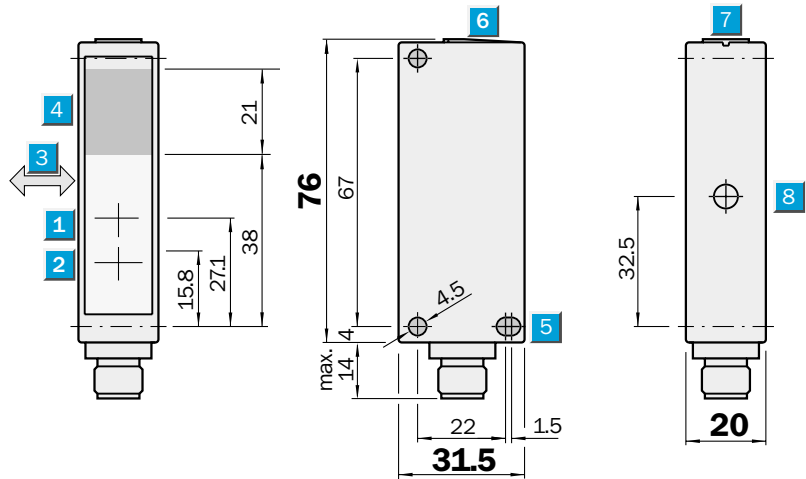
- 9) A =  $V_S$  connections reverse-polarity protected
- B = Output Q and  $\bar{Q}$  short-circuit protected
- C = Interference pulse suppression

Scanning distance		Order information													
 <table border="1" style="width: 100%; margin-top: 10px;"> <tr> <td style="width: 20px; text-align: center;">1</td> <td>Scanning distance on black, 6 % remission</td> </tr> <tr> <td style="width: 20px; text-align: center;">2</td> <td>Scanning distance on grey, 18 % remission</td> </tr> <tr> <td style="width: 20px; text-align: center;">3</td> <td>Scanning distance on white, 90 % remission</td> </tr> </table>	1	Scanning distance on black, 6 % remission	2	Scanning distance on grey, 18 % remission	3	Scanning distance on white, 90 % remission		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Type</th> <th style="text-align: left;">Part no.</th> </tr> </thead> <tbody> <tr> <td>WT 18-2P 122</td> <td>1 012 921</td> </tr> <tr> <td>WT 18-2P 420</td> <td>1 012 919</td> </tr> </tbody> </table>	Type	Part no.	WT 18-2P 122	1 012 921	WT 18-2P 420	1 012 919	
1	Scanning distance on black, 6 % remission														
2	Scanning distance on grey, 18 % remission														
3	Scanning distance on white, 90 % remission														
Type	Part no.														
WT 18-2P 122	1 012 921														
WT 18-2P 420	1 012 919														

	Scanning distance
	60...120 mm
	100...200 mm
Photoelectric proximity switches	

- Adjustable background suppression
- Detection of objects with shiny surfaces
- Insensitive to ambient light sources (HF lamps, flashing alarm lamps)
- No mutual interference if devices are installed opposite each other
- Operating temperature - 40 °C...+ 60 °C

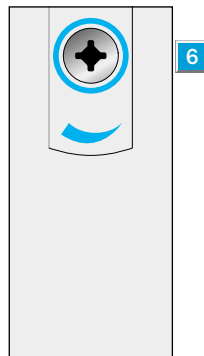
Dimensional drawing



Adjustments possible

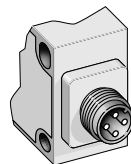
WTV 18-2P 410
WTV 18-2P 420

- Centre of optical axis, sender, WTV 18-2P 410
- Centre of optical axis, sender, WTV 18-2P 420
- Standard direction of the material being scanned
- Receiving range
- Mounting hole  $\varnothing$  4.5 mm
- Scanning distance adjustment
- Alignment sight
- Status indicator

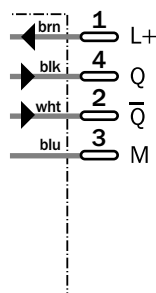


Connection type

WTV 18-2P 410
WTV 18-2P 420



4-pin, M 12



Accessories	page
Cable receptacles	496
Mounting brackets	510



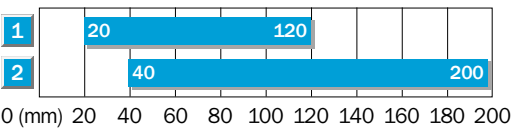
Technical data		WTV 18-2	P 410	P 420
<b>Scanning distance</b>	60...120 mm, adjustable			
	100...200 mm, adjustable			
<b>Light source<sup>1)</sup>, light type</b>	LED, infrared light			
Light spot diameter	8 mm at 120 mm			
	8 mm at 200 mm			
<b>Supply voltage <math>V_S</math></b>	10...30 V DC <sup>2)</sup>			
Ripple <sup>3)</sup>	$\leq 5 V_{SS}$			
Current consumption <sup>4)</sup>	$< 30$ mA			
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$			
Output current $I_A$ max.	100 mA			
PNP; signal voltage HIGH	$V_S - (< 1.5$ V)			
NP; signal voltage LOW	Approx. 0 V			
Response time <sup>5)</sup>	2 ms			
Max. switching frequency <sup>6)</sup>	250/s			
<b>Connection type</b>	Plug			
<b>VDE protection class<sup>7)</sup></b>	<input type="checkbox"/>			
<b>Circuit protection<sup>8)</sup></b>	A, B, C			
<b>Enclosure rating</b>	IP 67			
<b>Ambient temperature <math>T_A</math></b>	Operation $-25$ °C... $+60$ °C			
	Storage $-25$ °C... $+75$ °C			
<b>Weight</b>	Approx. 100 g			
<b>Housing material</b>	ABS, acrylonitrile butadiene styrene			

- 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

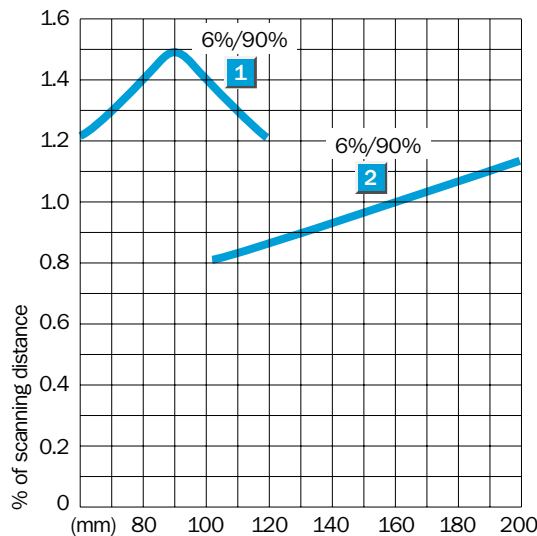
- 4) Without load
- 5) Signal transit time with resistive load
- 6) With light/dark ratio 1:1
- 7) Reference voltage 50 V DC

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

**Scanning distance**



- 1 Scanning distance on black, 6% remission with P 410
- 2 Scanning distance on black, 6% remission with P 420



**Order information**

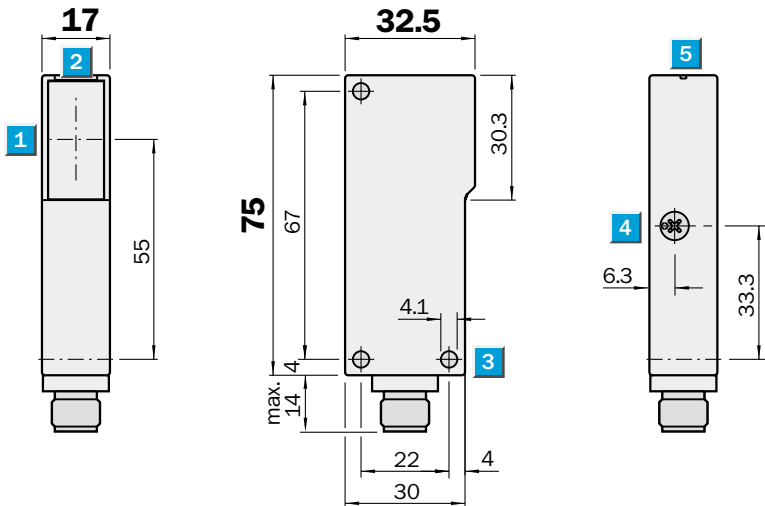
Type	Part no.
WTV 18-2P 410	1 016 198
WTV 18-2P 420	1 016 243

**Scanning range**  
7 m

Photoelectric reflex switches

- Insensitive to ambient light sources (HF lamps, flashing alarm lamps)
- No mutual interference if devices are installed opposite each other
- Operating temperature -40 °C...+60 °C
- Fast response time
- Test input for system diagnosis, optional
- Autocollimation system

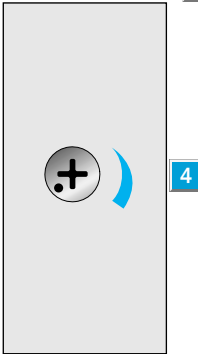
**Dimensional drawing**



**Adjustments possible**

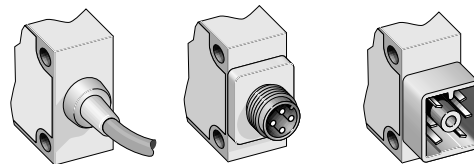
WL 18-2P 132	WL 18-2N 132
WL 18-2P 135	WL 18-2N 135
WL 18-2P 430	WL 18-2N 430
	WL 18-2N 630

- 1 Centre of optical axis
- 2 LED signal strength indicator
- 3 Mounting hole  $\varnothing$  4.1 mm
- 4 Sensitivity adjustment
- 5 Alignment sight



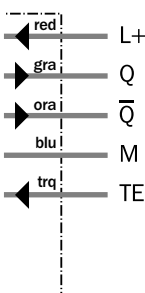
**Connection types**

WL 18-2P 132	WL 18-2P 430	WL 18-2P 630
WL 18-2P 135	WL 18-2N 430	WL 18-2N 630
WL 18-2N 132		
WL 18-2N 135		

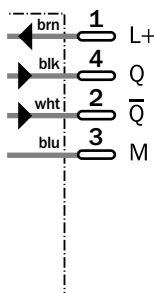


Accessories	page
Cable receptacles	496
Mounting brackets	510
Reflectors	520

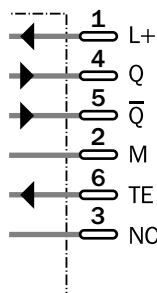
5 x 0.25 mm<sup>2</sup>



4-pin, M 12



6-pin



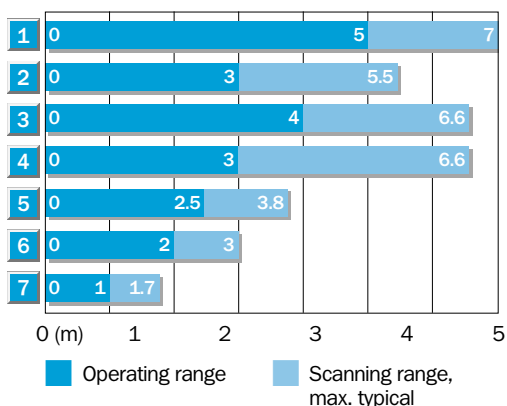
Technical data		WL 18-2	P 132	P 135	P 430	P 630	N 132	N 135	N 430	N 630
<b>Scanning range</b> , max. typ./on reflector	7 m/PL 80 A									
Sensitivity	adjustable									
<b>Light source<sup>1)</sup>, light type</b>	LED, red light									
Light spot diameter	40 mm at 2 m									
<b>Supply voltage <math>V_S</math></b>	10...30 V DC <sup>2)</sup>									
Ripple <sup>3)</sup>	$\leq 5 V_{SS}$									
Current consumption <sup>4)</sup>	$< 25$ mA									
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$									
	NPN, Q and $\bar{Q}$									
Output current $I_A$ max.	100 mA									
PNP; signal voltage HIGH	$V_S - (< 2.9$ V)									
PNP; signal voltage LOW	Approx. 0 V									
NPN; signal voltage HIGH	Approx. $V_S$									
NPN; signal voltage LOW	$< 1.5$ V									
Response time <sup>5)</sup> /Max. switching freq. <sup>6)</sup>	$< 500$ $\mu$ s; 1000/s									
<b>Test input "TE"</b>										
PNP, sender OFF	Test input to 0									
NPN, sender OFF	Test input to $V_+$									
<b>Connection types</b>	Cable <sup>7)</sup> , 2 m									
	Cable <sup>7)</sup> , 5 m									
	Plug									
<b>VDE protection class<sup>8)</sup></b>	$\square$									
<b>Circuit protection<sup>9)</sup></b>	A, B, C									
<b>Enclosure rating</b>	IP 67									
	IP 65									
<b>Ambient temperature <math>T_A</math></b>	Operation $-40$ $^{\circ}$ C... $+60$ $^{\circ}$ C									
	Storage $-40$ $^{\circ}$ C... $+75$ $^{\circ}$ C									
<b>Weight</b>	Approx. 100 g									
<b>Polarising filter</b>										
<b>Housing material</b>	ABS, acrylonitrile butadiene styrene									

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

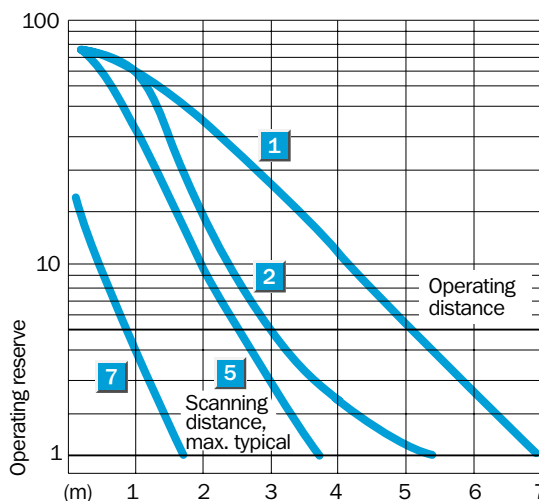
- 4) Without load
- 5) Signal transit time with resistive load
- 6) With light/dark ratio 1:1
- 7) Do not bend below 0  $^{\circ}$ C
- 8) Reference voltage 50 V DC

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

**Scanning range and operating reserve**



Reflector type	Operating range
1 PL 80 A	0...5.0 m
2 C 110	0...3.0 m
3 PL 50	0...4.0 m
4 PL 40 A	0...3.0 m
5 PL 30 A	0...2.5 m
6 PL 20 A	0...2.0 m
7 Reflective tape Diamond Grade	0...1.0 m



**Order information**

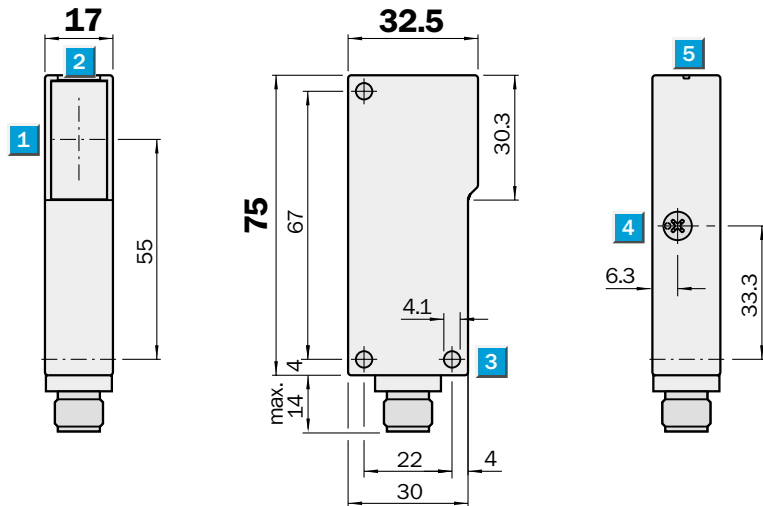
Type	Part no.
WL 18-2P 132	1 012 906
WL 18-2P 135	1 012 907
WL 18-2P 430	1 012 908
WL 18-2P 630	1 012 912
WL 18-2N 132	1 012 903
WL 18-2N 135	1 012 911
WL 18-2N 630	1 012 904
WL 18-2N 430	1 016 205

 **Scanning range**  
20 m

Through-beam photoelectric switches

- Insensitive to ambient light sources (HF lamps, flashing alarm lamps)
- Operating temperature - 40 °C... + 60 °C
- Fast response time
- Test input for system diagnosis

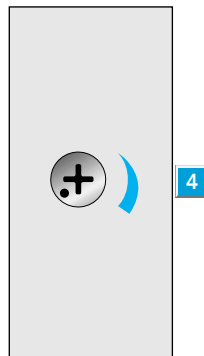
**Dimensional drawing**



**Adjustments possible**

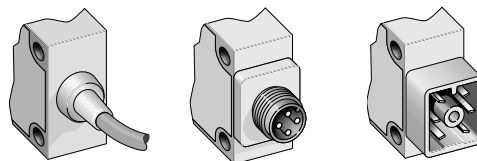
WS/WE 18-2P 132	WS/WE 18-2N 132
WS/WE 18-2P 630	WS/WE 18-2N 630
WS/WE 18-2P 430	

- 1 Centre of optical axis
- 2 Operating voltage indicator, green (WS)  
LED signal strength indicator, yellow (WE)
- 3 Mounting hole  $\varnothing$  4.1 mm
- 4 Sensitivity adjustment
- 5 Alignment sight



**Connection types**

WS/WE 18-2P 132	WS/WE 18-2P 430	WS/WE 18-2P 630
WS/WE 18-2N 132		WS/WE 18-2N 630

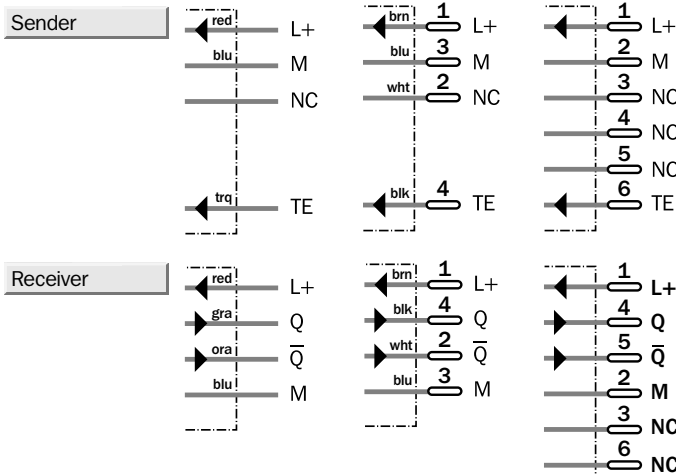


4 x 0.25 mm<sup>2</sup>

4-pin, M 12

6-pin

<b>Accessories</b>	page
Cable receptacles	496
Mounting brackets	510



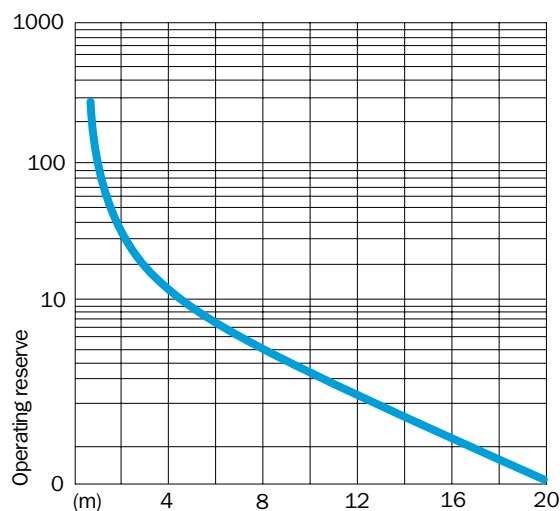
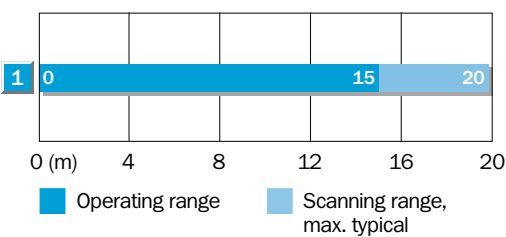
Technical data		WS/WE 18-2	P 132	P 430	P 630	N 132	N 630					
<b>Scanning range</b> , max. typical	0...20 m											
Sensitivity	adjustable											
<b>Light source<sup>1)</sup>, light type</b>	LED, red light											
Light spot diameter	Approx. 450 mm at 15 m											
Angle of dispersion	Approx. 1.5°											
<b>Supply voltage V<sub>S</sub></b>	10...30 V DC <sup>2)</sup>											
Ripple <sup>3)</sup>	≤ 5 V <sub>SS</sub>											
Current consumption <sup>4)</sup>	< 60 mA											
sender without heating	< 35 mA											
receiver without heating	< 25 mA											
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$											
	NPN, Q and $\bar{Q}$											
Output current I <sub>A</sub> max.	100 mA											
PNP; signal voltage HIGH	V <sub>S</sub> - (< 2.9 V)											
PNP; signal voltage LOW	Approx. 0 V											
NPN; signal voltage HIGH	Approx. V <sub>S</sub>											
NPN; signal voltage LOW	< 1.5 V											
Response time <sup>5)</sup>	500 μs											
Max. switching frequency <sup>6)</sup>	1000/s											
<b>Test input "TE"</b> sender OFF	Test input to 0 V											
<b>Connection type</b>	Cable <sup>7)</sup> , 2 m											
	Plug											
<b>VDE protection class<sup>8)</sup></b>	□											
<b>Circuit protection<sup>9)</sup></b>	A, B, C											
<b>Enclosure rating</b>	IP 67											
	IP 65											
<b>Ambient temperature T<sub>A</sub></b>	Operation - 40 °C...+ 60 °C											
	Storage - 40 °C...+ 75 °C											
<b>Weight</b>	Approx. 100 g											
<b>Housing material</b>	ABS, acrylonitrile butadiene styrene											

- 1) Average service life 100,000 h at T<sub>A</sub> = + 25 °C
- 2) Limit values
- 3) May not exceed or fall short of V<sub>S</sub> 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

- 9) A = V<sub>S</sub> connections reverse-polarity protected
- B = Output Q and  $\bar{Q}$  short-circuit protected
- C = Interference pulse suppression

**Scanning range and operating reserve**



**Order information**

Type	Part no.
WS/WE 18-2P 132	1 012 915
WS/WE 18-2P 430	1 012 916
WS/WE 18-2P 630	1 012 918
WS/WE 18-2N 132	1 012 914
WS/WE 18-2N 630	1 012 917