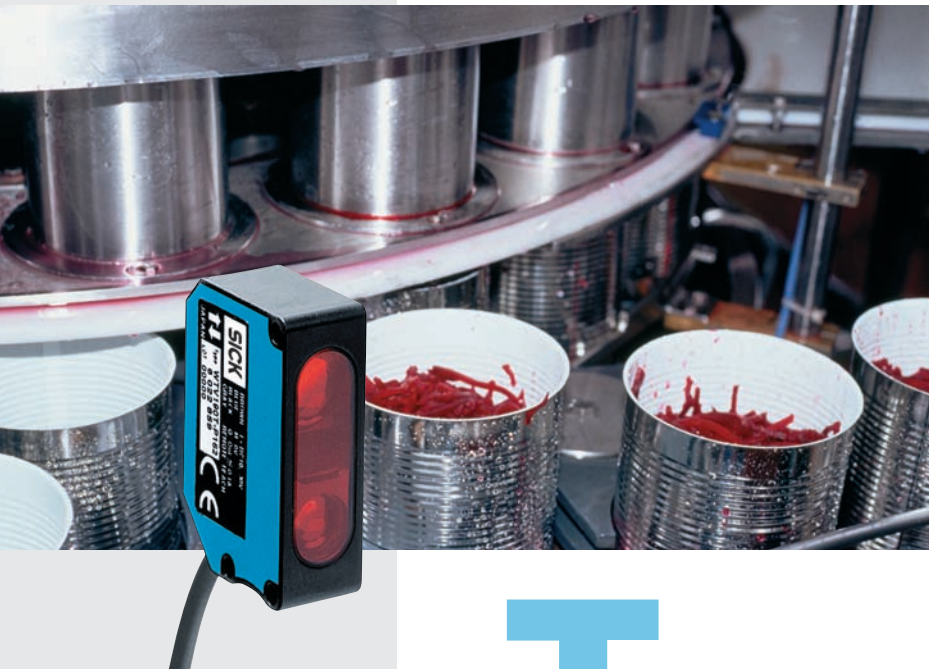


# WT190T: The convenient, reliable proximity switch – precisely the right one for challenging applications



**Equipment parameterization at the push of a button:** The scanners can be programmed conveniently via the selection mode and consequently aligned ideally for the application. When the situation requires it, a timer function can be activated with a time delay up to 10 seconds.

**Display:** Menu prompting is via the easily readable display. The compact, industrial standard ABS plastic housing makes it possible to use the equipment even in difficult environmental conditions. The 4-pin M8 equipment plug or the 2m cable are standard equipment in the same way as the 200 Hz switching frequency. The performance range of the WT190T can be used meaningfully in the following fields:

- Packaging industry,
- Electronics industry,
- Handling/robotic systems,
- Special-purposes construction machine.

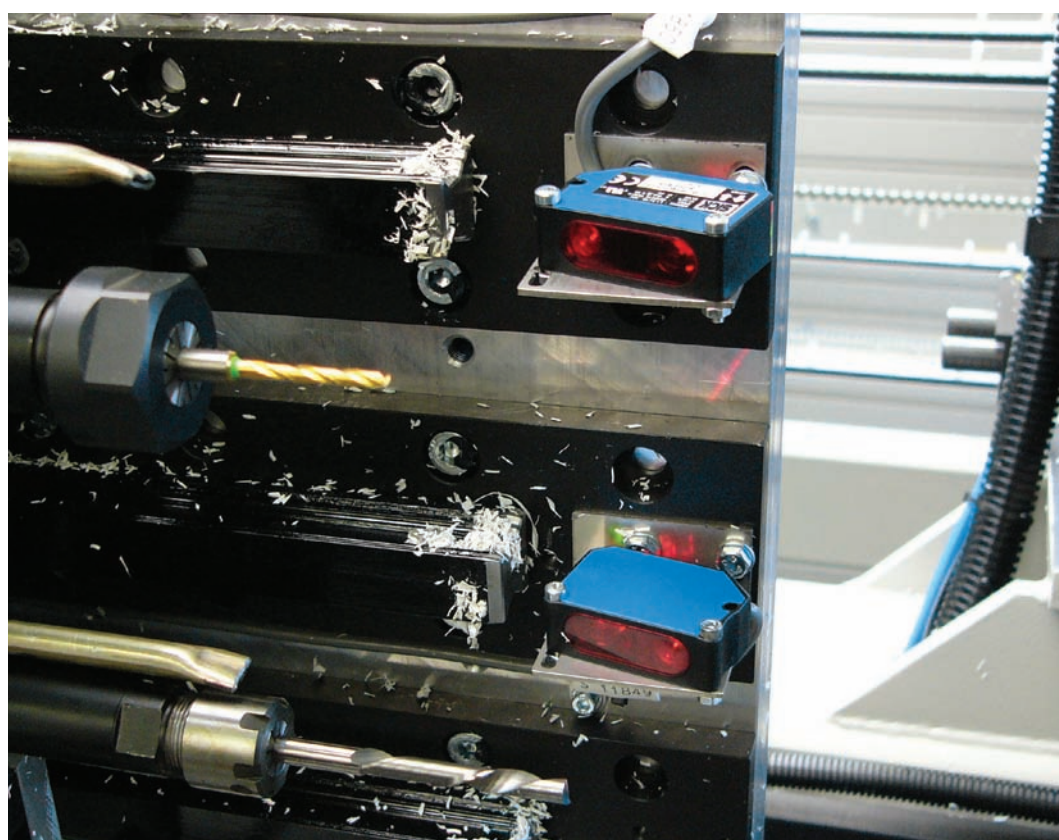
The most important market requirements for photoelectric proximity switches in demanding applications are economic efficiency, reliability and easy operation. The WT190T series composed of the photoelectric proximity switch WTB190T with background suppression and the WTV190T with foreground suppression fulfill these requirements. The WT190T stands for innovative technologies for solving multifaceted tasks.

Standard system features:

**Red light:** The sensors can be aligned optimally and quickly on the object using the visible light spot.

**Teach-in procedure at the push of a button or externally:** This enables simplified and very effective alignment of equipment.

- ▶ WTV190T photoelectric proximity switch with foreground suppression: presence control in a packaging machine.



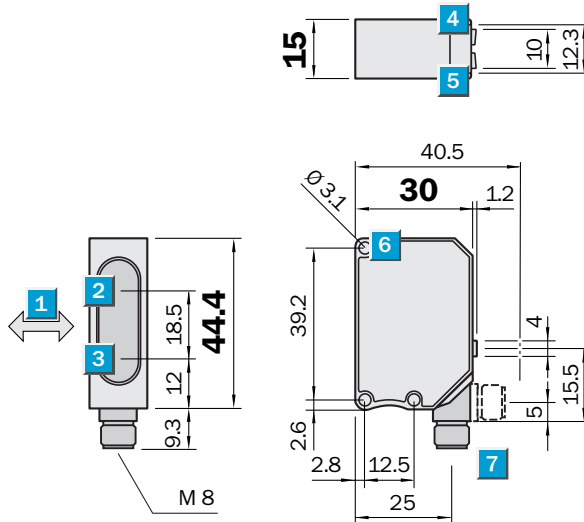
- ◀ WTB190T photoelectric proximity switch with background suppression for monitoring of drill fracture. The sensor supervises the presence of drills.

**Scanning distance**  
80 ... 300 mm

Photoelectric proximity switch

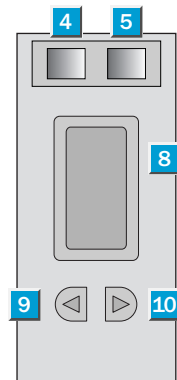
- Precise foreground suppression
- Small light spot enabling fast and precise alignment
- Scanning range setting via Teach-in procedure
- Easily readable display with menu navigation enables convenient programming and parameterization

**Dimensional drawing**



**Adjustments possible**

- WTV190T-N162
- WTV190T-N460
- WTV190T-P162
- WTV190T-P460



- 1 Standard direction of the material being scanned
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 LED indicator green: output active
- 5 LED indicator orange: light reception with operating reserve > 1.1 or without light reception
- 6 Mounting holes, Ø approx. 3.1 mm
- 7 Connection
- 8 Numerical display
- 9 Select mode button
- 10 Teach-in button

**External Teach-in**

Time	Teach mode
1.5 s - 3.8 s	1-point teach-in
4 s - 6.3 s	2-point teach-in



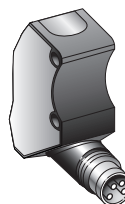
**Connection type**

- WTV190T-N162
- WTV190T-P162

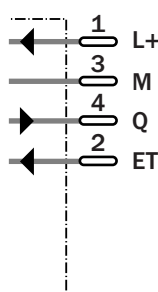
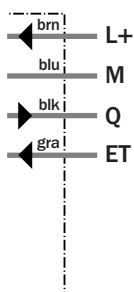
- WTV190T-N460
- WTV190T-P460



4 x 0.2 mm<sup>2</sup>



M8, 4-pin



**See chapter Accessories**

- Connector, M8, 4-pin
- Mounting systems

Technical specifications		WTV190T-	N162	N460	P162	P460						
Scanning distance typ. max.	80 ... 300 mm <sup>1)</sup>											
Operating distance	100 ... 300 mm <sup>1)</sup>											
Adjustment of operating distance	Teach-in: teach button & cable (ET) <sup>2)</sup>											
Light source, light type	LED, Red light, 680 nm <sup>3)</sup>											
Light spot diameter	11 mm at distance of 300 mm											
Supply voltage V <sub>s</sub>	DC 10 ... 30 V <sup>4)</sup>											
Ripple	± 10 % <sup>5)</sup>											
Power consumption	60 mA <sup>6)</sup>											
Switching outputs	NPN: open collector: Q PNP: open collector: Q											
Switching mode	Light/dark-switching, programmable											
Signal voltage PNP HIGH / LOW	V <sub>s</sub> - 1.8 V / approx. 0 V											
Signal voltage NPN HIGH / LOW	Approx. V <sub>s</sub> / < 1.8 V											
Output current I <sub>a</sub> max	100 mA											
Response time	2.5 ms <sup>7)</sup>											
Switching frequency	200 Hz <sup>8)</sup>											
Time step	0...10 s, programmable											
Time type	Nor: normal Mode Ond: ON Delay Mode OFd: OFF Delay Mode											
Connection type	Cable, PVC, 2 m <sup>9)</sup> Connector, M8, 4-pin											
VDE protection class	⊠											
Circuit protection	V <sub>s</sub> connections reverse-polarity protected / In-/outputs short-circuit protected / Interference pulse suppression / Outputs overcurrent and short-circuit protected											
Enclosure rating	IP 67											
Ambient temperature operation	-25 °C ... +55 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 66 g Approx. 18 g											
Housing material	ABS / PMMA											

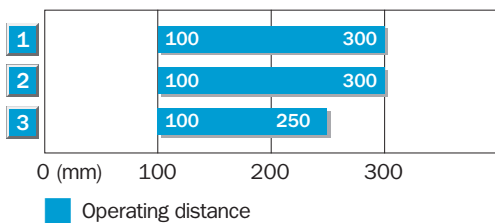
<sup>1)</sup> Object with 90% remission (based on standard white to DIN 5033)  
<sup>2)</sup> PNP: control wire > 7 V  
NPN: control wire < 1.5 V

<sup>3)</sup> Average service life 100,000 h at T<sub>a</sub> = +25 °C  
<sup>4)</sup> Limit values, operation in short-circuit protected network max. 8 A

<sup>5)</sup> may not exceed or fall short of V<sub>s</sub> tolerances  
<sup>6)</sup> without load  
<sup>7)</sup> Signal transit time with resistive load

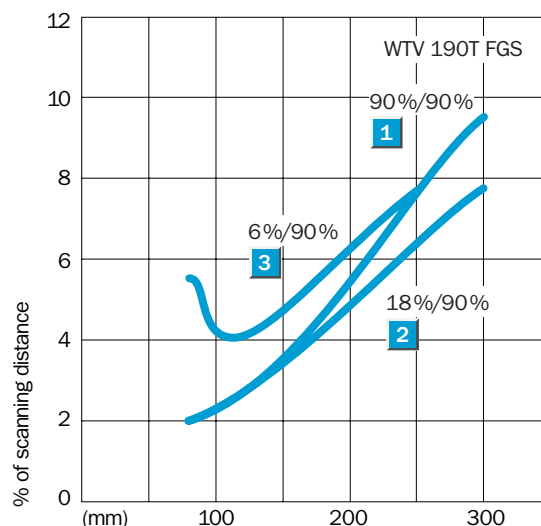
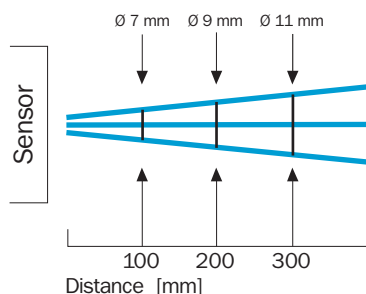
<sup>8)</sup> with light/dark ratio 1:1  
<sup>9)</sup> do not bend below 0 °C

**Operating distance**



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

**Light spot diameter**



**Ordering information**

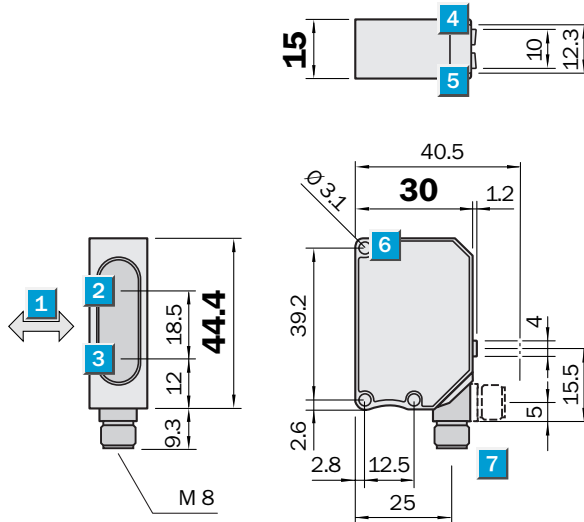
Type	Order no.
WTV190T-N162	6 022 855
WTV190T-N460	6 022 858
WTV190T-P162	6 022 859
WTV190T-P460	6 022 862

**Scanning distance**  
30 ... 100 mm

Photoelectric proximity switch

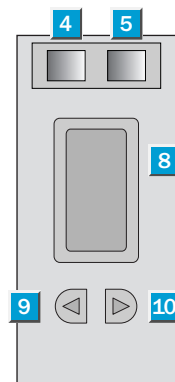
- Precise foreground suppression
- Small light spot enabling fast and precise alignment
- Scanning range setting via Teach-in procedure
- Easily readable display with menu navigation enables convenient programming and parameterization

**Dimensional drawing**



**Adjustments possible**

- WTV190T-N132
- WTV190T-N430
- WTV190T-P132
- WTV190T-P430



- 1 Standard direction of the material being scanned
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 LED indicator green: output active
- 5 LED indicator orange: light reception with operating reserve > 1.1 or without light reception
- 6 Mounting holes, Ø approx. 3.1 mm
- 7 Connection
- 8 Numerical display
- 9 Select mode button
- 10 Teach-in button

**External Teach-in**

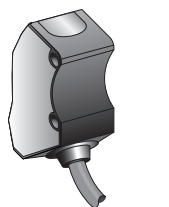
Time	Teach mode
1.5 s - 3.8 s	1-point teach-in
4 s - 6.3 s	2-point teach-in



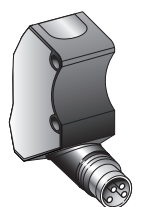
**Connection type**

- WTV190T-N132
- WTV190T-P132

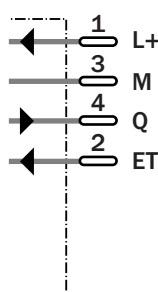
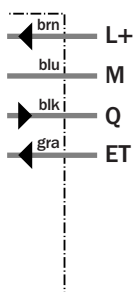
- WTV190T-N430
- WTV190T-P430



4 x 0.2 mm<sup>2</sup>



M8, 4-pin



**See chapter Accessories**

Connector, M8, 4-pin

Mounting systems

Technical specifications		WTV190T-	N132	N430	P132	P430						
Scanning distance <b>typ. max.</b>	30 ... 100 mm <sup>1)</sup>											
Operating distance	50 ... 100 mm <sup>1)</sup>											
Adjustment of operating distance	Teach-in: teach button & cable (ET) <sup>2)</sup>											
Light source, light type	LED, Red light, 680 nm <sup>3)</sup>											
Light spot diameter	4 mm at distance of 100 mm											
Supply voltage <b>V<sub>s</sub></b>	DC 10 ... 30 V <sup>4)</sup>											
Ripple	± 10 % <sup>5)</sup>											
Power consumption	60 mA <sup>6)</sup>											
Switching outputs	NPN: open collector: Q											
	PNP: open collector: Q											
Switching mode	Light/dark-switching, programmable											
Signal voltage PNP HIGH / LOW	V <sub>s</sub> - 1.8 V / approx. 0 V											
Signal voltage NPN HIGH / LOW	Approx. V <sub>s</sub> / < 1.8 V											
Output current I <sub>a</sub> max	100 mA											
Response time	2.5 ms <sup>7)</sup>											
Switching frequency	200 Hz <sup>8)</sup>											
Time step	0...10 s, programmable											
Time type	Nor: normal Mode											
	Ond: ON Delay Mode											
	OFd: OFF Delay Mode											
Connection type	Cable, PVC, 2 m <sup>9)</sup>											
	Connector, M8, 4-pin											
VDE protection class	⊠											
Circuit protection	V <sub>s</sub> connections reverse-polarity protected / In-/outputs short-circuit protected / Interference pulse suppression / Outputs overcurrent and short-circuit protected											
Enclosure rating	IP 67											
Ambient temperature operation	-25 °C ... +55 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 66 g											
	Approx. 18 g											
Housing material	ABS / PMMA											

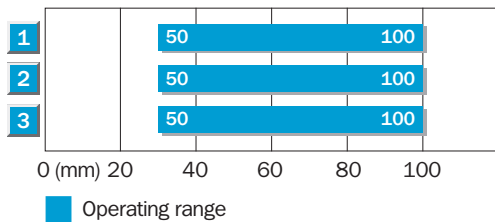
<sup>1)</sup> Object with 90% remission (based on standard white to DIN 5033)  
<sup>2)</sup> PNP: control wire > 7 V  
 NPN: control wire < 1.5 V

<sup>3)</sup> Average service life 100,000 h at T<sub>a</sub> = +25°C  
<sup>4)</sup> Limit values, operation in short-circuit protected network max. 8 A

<sup>5)</sup> may not exceed or fall short of V<sub>s</sub> tolerances  
<sup>6)</sup> without load  
<sup>7)</sup> Signal transit time with resistive load

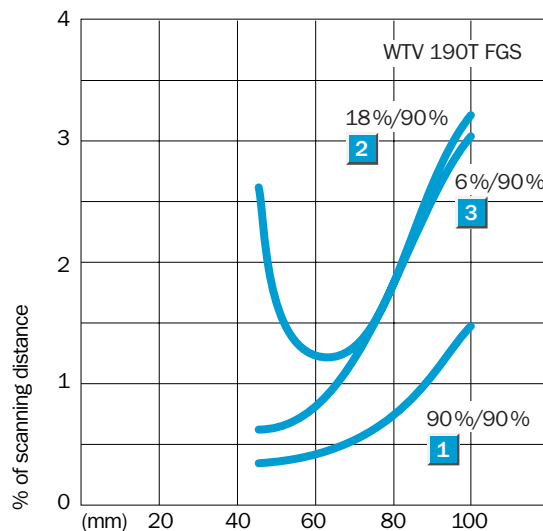
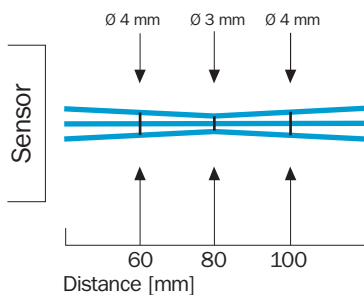
<sup>8)</sup> with light/dark ratio 1:1  
<sup>9)</sup> do not bend below 0 °C

**Operating distance**



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

**Light spot diameter**



**Ordering information**

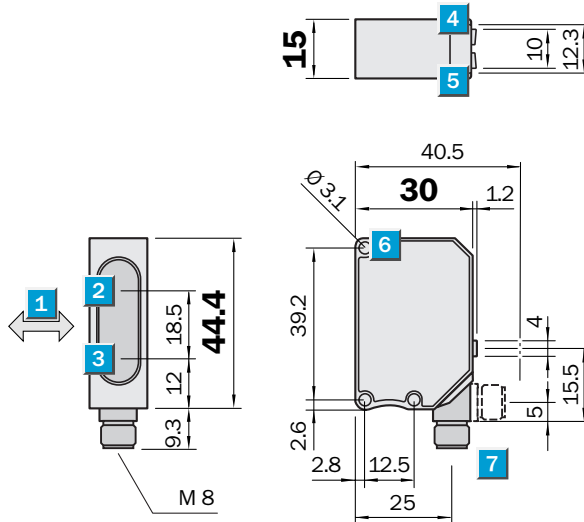
Type	Order no.
WTV190T-N132	6 022 847
WTV190T-N430	6 022 850
WTV190T-P132	6 022 851
WTV190T-P430	6 022 854

**Scanning distance**  
80 ... 300 mm

Photoelectric proximity switch

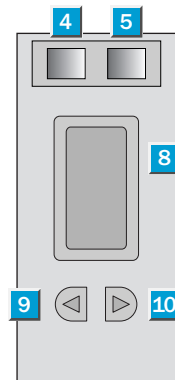
- Precise background suppression
- Small light spot enabling fast and precise alignment
- Scanning range setting via Teach-in procedure
- Easily readable display with menu navigation enables convenient programming and parameterization

**Dimensional drawing**



**Adjustments possible**

- WTB190T-N162
- WTB190T-N460
- WTB190T-P162
- WTB190T-P460



- 1 Standard direction of the material being scanned
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 LED indicator green: output active
- 5 LED indicator orange: light reception with operating reserve > 1.1 or without light reception
- 6 Mounting holes, Ø approx. 3.1 mm
- 7 Connection
- 8 Numerical display
- 9 Select mode button
- 10 Teach-in button

**External Teach-in**

Time	Teach mode
1.5 s - 3.8 s	1-point teach-in
4 s - 6.1 s	2-point teach-in
>6.3 s	Position teach-in



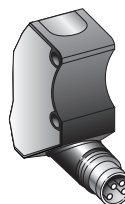
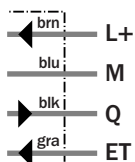
**Connection type**

- WTB190T-N162
- WTB190T-P162

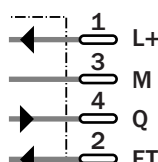
- WTB190T-N460
- WTB190T-P460



4 x 0.2 mm<sup>2</sup>



M8, 4-pin



**See chapter Accessories**

- Connector, M8, 4-pin
- Mounting systems

Technical specifications		WTB190T-	N162	N460	P162	P460							
Scanning distance typ. max.	80 ... 300 mm <sup>1)</sup>												
Operating distance	100 ... 300 mm <sup>1)</sup>												
Adjustment of operating distance	Teach-in: teach button & cable (ET) <sup>2)</sup>												
Light source, light type	LED, Red light, 680 nm <sup>3)</sup>												
Light spot diameter	11 mm at distance of 300 mm												
Supply voltage V <sub>s</sub>	DC 10 ... 30 V <sup>4)</sup>												
Ripple	± 10 % <sup>5)</sup>												
Power consumption	≤ 60 mA <sup>6)</sup>												
Switching outputs	NPN: open collector: Q PNP: open collector: Q												
Switching mode	Light/dark-switching, programmable												
Signal voltage PNP HIGH / LOW	V <sub>s</sub> - 1.8 V / approx. 0 V												
Signal voltage NPN HIGH / LOW	Approx. V <sub>s</sub> / < 1.8 V												
Output current I <sub>a</sub> max	100 mA												
Response time	2.5 ms <sup>7)</sup>												
Switching frequency	200 Hz <sup>8)</sup>												
Time step	0...10 s, programmable												
Time type	Nor: normal Mode Ond: ON Delay Mode OFd: OFF Delay Mode												
Connection type	Cable, PVC, 2 m <sup>9)</sup> Connector, M8, 4-pin												
VDE protection class	⊠												
Circuit protection	V <sub>s</sub> connections reverse-polarity protected / In-/outputs short-circuit protected / Interference pulse suppression / Outputs overcurrent and short-circuit protected												
Enclosure rating	IP 67												
Ambient temperature operation	-25 °C ... +55 °C												
Ambient temperature storage	-40 °C ... +70 °C												
Weight	Approx. 66 g Approx. 18 g												
Housing material	ABS / PMMA												

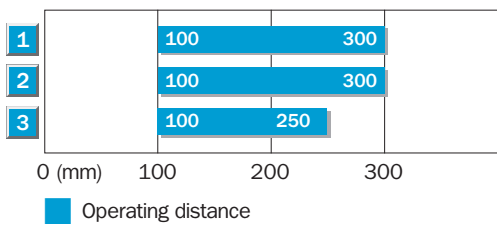
<sup>1)</sup> Object with 90% remission (based on standard white to DIN 5033)  
<sup>2)</sup> PNP: control wire > 7 V  
NPN: control wire < 1.5 V

<sup>3)</sup> Average service life 100,000 h at T<sub>a</sub> = +25°C  
<sup>4)</sup> Limit values, operation in short-circuit protected network max. 8 A

<sup>5)</sup> may not exceed or fall short of V<sub>s</sub> tolerances  
<sup>6)</sup> without load  
<sup>7)</sup> Signal transit time with resistive load

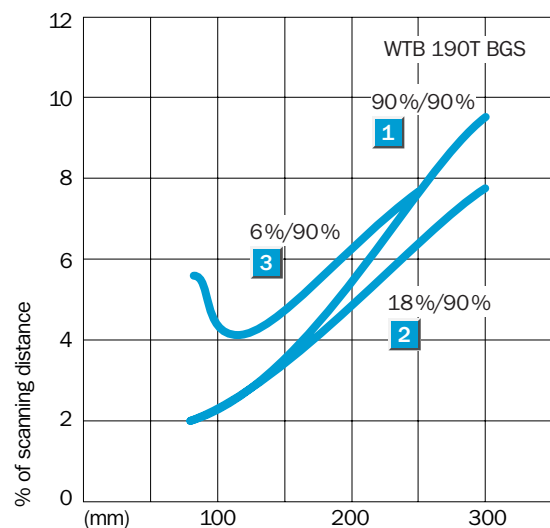
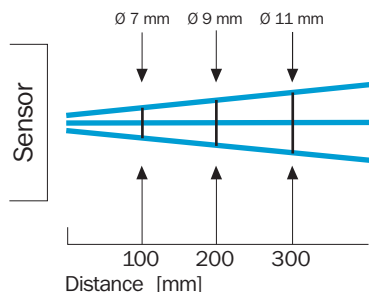
<sup>8)</sup> with light/dark ratio 1:1  
<sup>9)</sup> do not bend below 0 °C

**Operating distance**



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

**Light spot diameter**



**Ordering information**

Type	Order no.
WTB190T-N162	6 022 839
WTB190T-N460	6 022 842
WTB190T-P162	6 022 843
WTB190T-P460	6 022 846

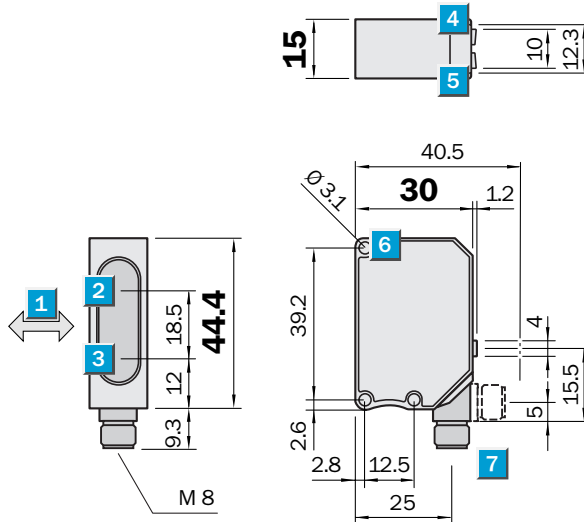


**Scanning distance**  
30 ... 100 mm

Photoelectric proximity switch

- Precise background suppression
- Small light spot enabling fast and precise alignment
- Scanning range setting via Teach-in procedure
- Easily readable display with menu navigation enables convenient programming and parameterization

**Dimensional drawing**



**Adjustments possible**

- WTB190T-N132
- WTB190T-N430
- WTB190T-P132
- WTB190T-P430



- 1 Standard direction of the material being scanned
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 LED indicator green: output active
- 5 LED indicator orange: light reception with operating reserve > 1.1 or without light reception
- 6 Mounting holes, Ø approx. 3.1 mm
- 7 Connection
- 8 Numerical display
- 9 Select mode button
- 10 Teach-in button

**External Teach-in**

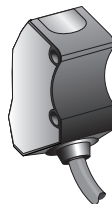
Time	Teach mode
1.5 s - 3.8 s	1-point teach-in
4 s - 6.1 s	2-point teach-in
>6.3 s	Position teach-in



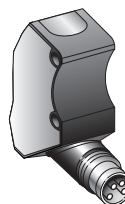
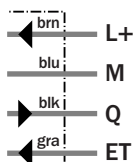
**Connection type**

- WTB190T-N132
- WTB190T-P132

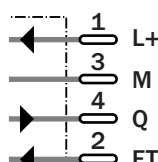
- WTB190T-N430
- WTB190T-P430



4 x 0.2 mm<sup>2</sup>



M8, 4-pin



**See chapter Accessories**

- Connector, M8, 4-pin
- Mounting systems

Technical specifications		WTB190T-	N132	N430	P132	P430						
Scanning distance typ. max.	30 ... 100 mm <sup>1)</sup>											
Operating distance	50 ... 100 mm <sup>1)</sup>											
Adjustment of operating distance	Teach-in: teach button & cable (ET) <sup>2)</sup>											
Light source, light type	LED, Red light, 680 nm <sup>3)</sup>											
Light spot diameter	4 mm at distance of 100 mm											
Supply voltage V <sub>s</sub>	DC 10 ... 30 V <sup>4)</sup>											
Ripple	± 10 % <sup>5)</sup>											
Power consumption	60 mA <sup>6)</sup>											
Switching outputs	NPN: open collector: Q PNP: open collector: Q											
Switching mode	Light/dark-switching, programmable											
Signal voltage PNP HIGH / LOW	V <sub>s</sub> - 1.8 V / approx. 0 V											
Signal voltage NPN HIGH / LOW	Approx. V <sub>s</sub> / < 1.8 V											
Output current I <sub>a</sub> max	100 mA											
Response time	2.5 ms <sup>7)</sup>											
Switching frequency	200 Hz <sup>8)</sup>											
Time step	0...10 s, programmable											
Time type	Nor: normal Mode Ond: ON Delay Mode OFd: OFF Delay Mode											
Connection type	Cable, PVC, 2 m <sup>9)</sup> Connector, M8, 4-pin											
VDE protection class	⊠											
Circuit protection	V <sub>s</sub> connections reverse-polarity protected / In-/outputs short-circuit protected / Interference pulse suppression / Outputs overcurrent and short-circuit protected											
Enclosure rating	IP 67											
Ambient temperature operation	-25 °C ... +55 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 66 g Approx. 18 g											
Housing material	ABS / PMMA											

<sup>1)</sup> Object with 90% remission (based on standard white to DIN 5033)

<sup>2)</sup> PNP: control wire > 7 V  
NPN: control wire < 1.5 V

<sup>3)</sup> Average service life 100,000 h at T<sub>a</sub> = +25°C

<sup>4)</sup> Limit values, operation in short-circuit protected network max. 8 A

<sup>5)</sup> may not exceed or fall short of V<sub>s</sub> tolerances

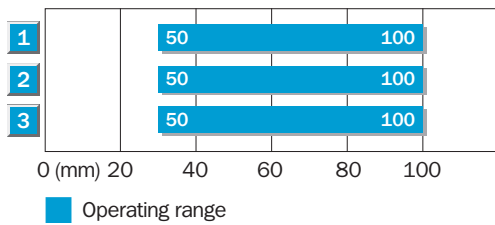
<sup>6)</sup> without load

<sup>7)</sup> Signal transit time with resistive load

<sup>8)</sup> with light/dark ratio 1:1

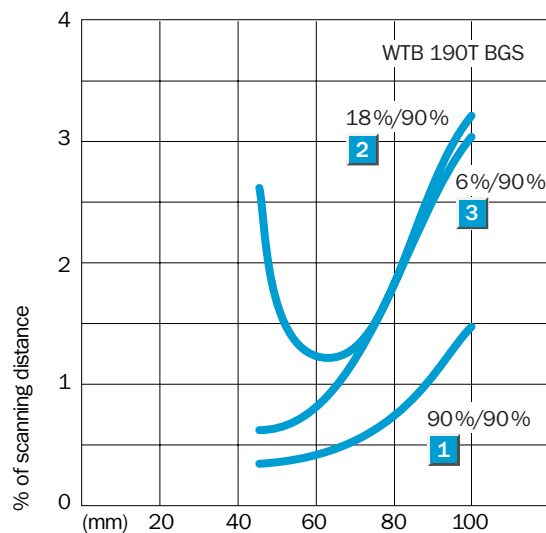
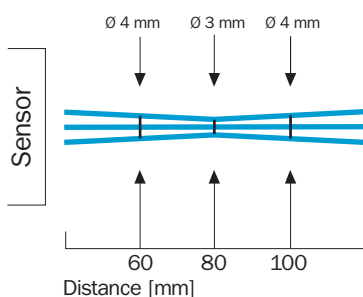
<sup>9)</sup> do not bend below 0 °C

**Operating distance**



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

**Light spot diameter**



**Ordering information**

Type	Order no.
WTB190T-N132	6 022 831
WTB190T-N430	6 022 834
WTB190T-P132	6 022 835
WTB190T-P430	6 022 838