

**Scanning distance**  
4... 55 mm

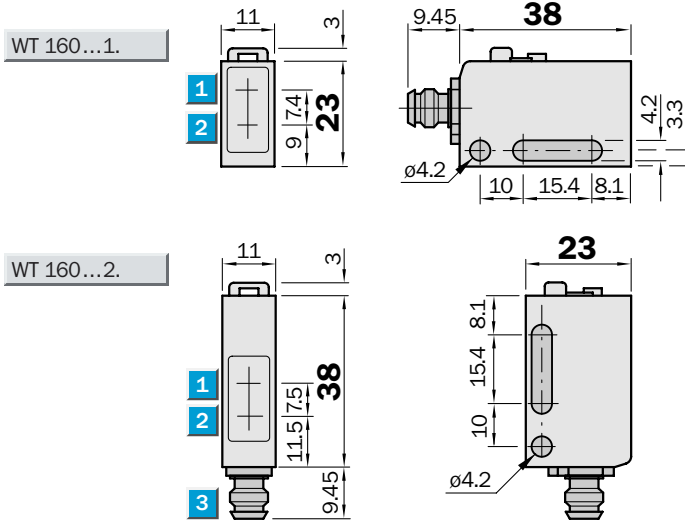
Photoelectric proximity switch

- Horizontal and vertical models
- Focussed scanner with background suppression and great sensitivity
- Contamination control with green LED indicator and contamination control output

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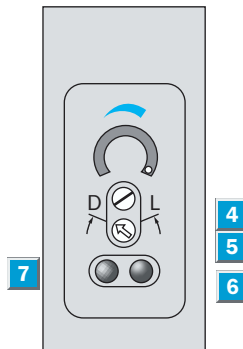


**Dimensional drawing**



**Setting options**

All types

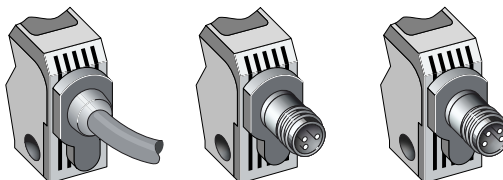


- 1 Optics center, receiver
- 2 Optics center, transmitter
- 3 Plug M 8 or connection cable
- 4 Sensitivity control
- 5 Light/dark rotary switch:  
L = light switching  
D = dark switching
- 6 Orange LED indicator (Status output)
- 7 Green LED signal strength indicator (Operating reserve)



**Connection type**

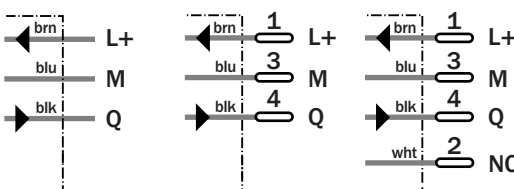
WT 160-E112	WT 160-E310	WT 160-E410
WT 160-E122	WT 160-E320	WT 160-E420
WT 160-F112	WT 160-F310	WT 160-F410
WT 160-F122	WT 160-F320	WT 160-F420



3x0.2 mm<sup>2</sup>

3 pin, M8

4 pin, M8



NC= not connected

Specifications		WT 160-	F112	F310	F410	E112	E310	E410	F122	F320	F420	E122	E320	E420
Housing shape	Horizontal													
	Vertical													
Scanning distance, typ. max.	4 ... 55 mm <sup>1)</sup>													
Operating scanning distance	8 ... 50 mm <sup>1)</sup>													
Background suppression	From approx. 100 mm													
Adjustable sensitivity	Potentiometer, 2 rotations w. scaling 270°													
Light source <sup>2)</sup> , light type	LED, red light													
Light spot diameter	Approx. 3 mm at 25 mm distance													
Transmitter dispersion angle	Focussed, focus 25 mm													
Supply voltage V <sub>S</sub>	DC 10 ... 30 V <sup>3)</sup>													
Residual ripple <sup>4)</sup>	± 10 %													
Current consumption <sup>5)</sup>	≤ 25 mA													
Switching outputs	PNP, open collector: Q													
	NPN, open collector: Q													
Output current I <sub>A</sub> max.	100 mA													
Light receiver, switching type	Light/dark switching per rotary switch													
Response time <sup>6)</sup> /Max. switching frequ. <sup>7)</sup>	≤ 0.5 ms / 1000/s													
Connection type: connection cable	PVC, 2 m <sup>8)</sup> ; 3 x 0.2 mm <sup>2</sup> , ø 4.2 mm													
	plug													
	plug													
VDE protection class <sup>9)</sup>	□													
Protection circuits <sup>10)</sup>	A, B, C, D													
Enclosure rating	IP 67													
Ambient temperature	Operation - 25... + 55 °C													
	Storage - 40 ... + 70 °C													
Weight	With connection cable approx. 60 g													
	With plug approx. 20 g													
Housing material	Housing: PBT; optics: PMMA													

- 1) Scanned material with 90 % reflectance (with reference to standard white according to DIN 5033)
- 2) Average service life 100,000 h at T<sub>U</sub> = + 25 °C

- 3) Limit values
- 4) May not exceed or fall short of V<sub>S</sub> tolerances
- 5) Without load

- 6) Signal operating time with ohmic load
- 7) With light/dark ratio 1:1
- 8) Do not bend connection cable below 0 °C
- 9) Rated voltage DC 50 V

- 10) A = V<sub>S</sub> connections reverse-polarity protected
- B = Inputs and outputs reverse-polarity protected
- C = Interference pulse suppression
- D = Outputs overload and short-circuit protected

### Scanning distance

Series	Operating scanning distance (mm)	Typ. max. scanning distance (mm)
1	4 - 8	50 - 55
2	6 - 8	40 - 45
3	8 - 10	30 - 35

- Operating scanning distance
- Typ. max. scanning distance

1	Scanning range on white, 90 % reflectance
2	Scanning range on gray, 18 % reflectance
3	Scanning range on black, 6 % reflectance

Operating reserve

Scanning range

### Ordering information

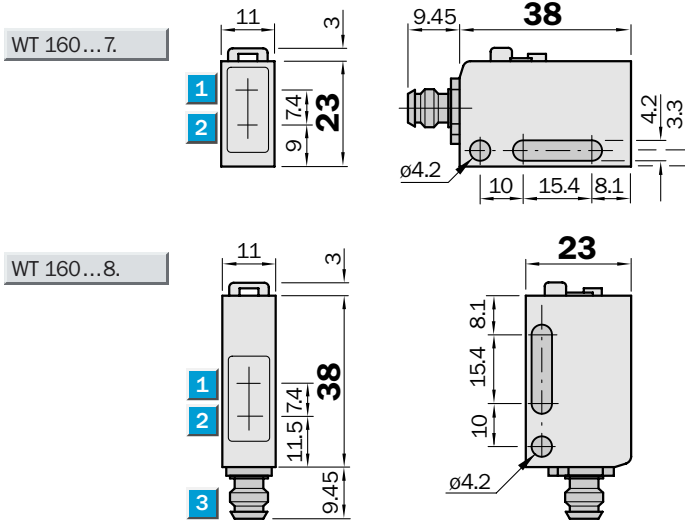
Type	Order no.
WT 160-F112	6 022 783
WT 160-F310	6 022 787
WT 160-F410	6 022 788
WT 160-F122	6 022 785
WT 160-F320	6 022 789
WT 160-F420	6 022 790
WT 160-E112	6 022 775
WT 160-E310	6 022 779
WT 160-E410	6 022 780
WT 160-E122	6 022 777
WT 160-E320	6 022 781
WT 160-E420	6 022 782

**Scanning distance**  
0... 900 mm

Photoelectric proximity switch

- Horizontal and vertical models
- Energetic scanner for standard applications
- Contamination control with green LED indicator and contamination control output

**Dimensional drawing**

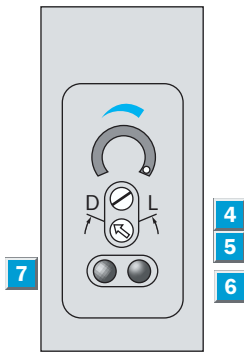


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**Setting options**

All types

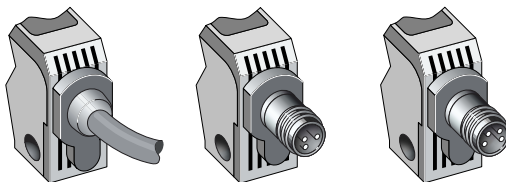


- 1 Optics center, receiver
- 2 Optics center, transmitter
- 3 Plug M 8 or connection cable
- 4 Sensitivity control
- 5 Light/dark rotary switch:  
L = light switching  
D = dark switching
- 6 Orange LED indicator (Status output)
- 7 Green LED signal strength indicator (Operating reserve)



**Connection type**

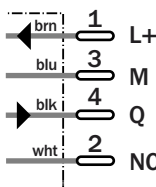
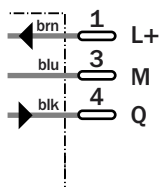
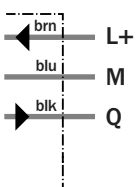
WT 160-E172	WT 160-E370	WT 160-E470
WT 160-E182	WT 160-E380	WT 160-E480
WT 160-F172	WT 160-F370	WT 160-F470
WT 160-F182	WT 160-F380	WT 160-F480



3x0.2 mm<sup>2</sup>

3 pin, M8

4 pin, M8



**Accessories**

Cable receptacles
Mounting bracket (included)

NC= not connected

Specifications		WT 160-	F172	F370	F470	E172	E370	E470	F182	F380	F480	E182	E380	E480
Housing shape	Horizontal													
	Vertical													
Scanning distance, typ. max.	0 ... 900 mm <sup>1)</sup>													
Operating scanning distance	0 ... 800 mm <sup>1)</sup>													
Adjustable sensitivity	Potentiometer, 2 rotations w. scaling 270°													
Light source <sup>2)</sup> , light type	LED, red light													
Light spot diameter	Approx. 90 mm at 500 mm distance													
Transmitter dispersion angle	Approx. 4.8°													
Supply voltage V <sub>S</sub>	DC 10 ... 30 V <sup>3)</sup>													
Residual ripple <sup>4)</sup>	± 10 %													
Current consumption <sup>5)</sup>	≤ 25 mA													
Switching outputs	PNP, open collector: Q NPN, open collector: Q													
Output current I <sub>A</sub> max.	100 mA													
Light receiver, switching type	Light/dark switching per rotary switch													
Response time <sup>6)</sup> / Max. switching frequ. <sup>7)</sup>	≤ 0.5 ms / 1000/s													
Connection type: connection cable	PVC, 2 m <sup>8)</sup> ; 3 x 0.2 mm <sup>2</sup> , ø 4.2 mm													
plug	3 pin, M8													
plug	4 pin, M8													
VDE protection class <sup>9)</sup>	□													
Protection circuits <sup>10)</sup>	A, B, C, D													
Enclosure rating	IP 67													
Ambient temperature	Operation - 25... +55 °C Storage - 40... +70 °C													
Weight	With connection cable approx. 60 g With plug approx. 20 g													
Housing material	Housing: PBT; optics: PMMA													

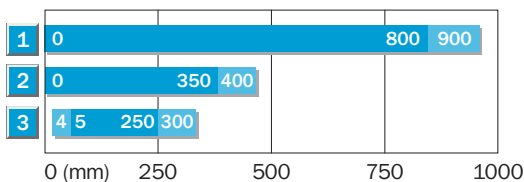
- 1) Scanned material with 90 % reflectance (with reference to standard white according to DIN 5033)
- 2) Average service life 100,000 h at T<sub>U</sub> = +25 °C

- 3) Limit values
- 4) May not exceed or fall short of V<sub>S</sub> tolerances
- 5) Without load
- 6) Signal operating time with ohmic load

- 7) With light/dark ratio 1:1
- 8) Do not bend connection cable below 0 °C
- 9) Rated voltage DC 50 V

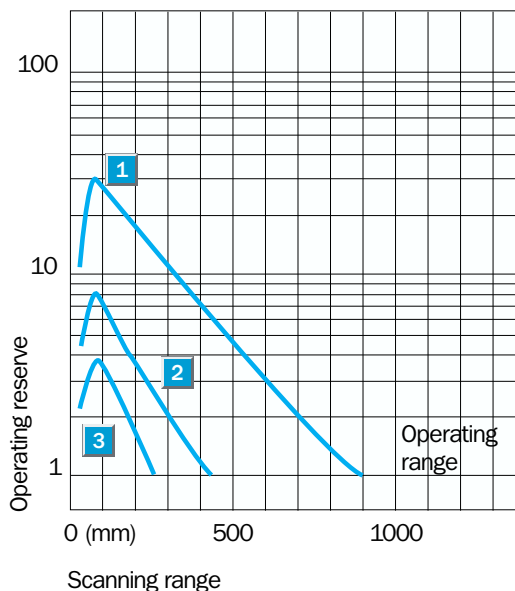
- 10) A = V<sub>S</sub> connections reverse-polarity protected
- B = Inputs and outputs reverse-polarity protected
- C = Interference pulse suppression
- D = Outputs overload and short-circuit protected

**Scanning distance**



■ Operating scanning distance  
■ Typ. max. scanning distance

- 1 Scanning range on white, 90 % reflectance
- 2 Scanning range on gray, 18 % reflectance
- 3 Scanning range on black, 6 % reflectance



**Ordering information**

Type	Order no.
WT 160-F172	6 022 815
WT 160-F370	6 022 819
WT 160-F470	6 022 820
WT 160-F182	6 022 817
WT 160-F380	6 022 821
WT 160-F480	6 022 822
WT 160-E172	6 022 807
WT 160-E370	6 022 811
WT 160-E470	6 022 812
WT 160-E182	6 022 809
WT 160-E380	6 022 813
WT 160-E480	6 022 814

**Scanning distance**  
0...105 mm

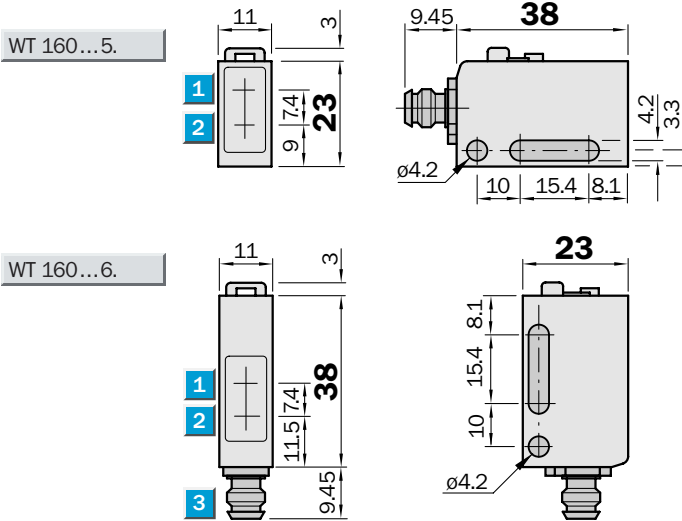
Photoelectric proximity switch

- Horizontal and vertical models
- Scanner with large opening angle for detecting objects conveyed loosely
- Contamination control with green LED indicator and contamination control output

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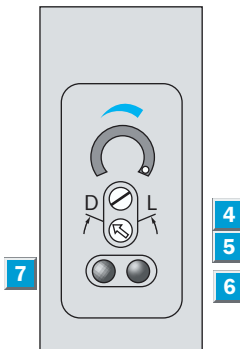


**Dimensional drawing**



**Setting options**

All types

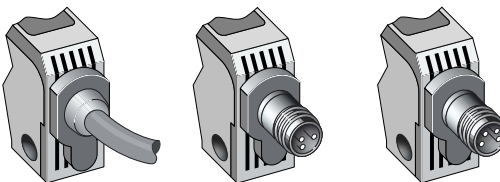


- 1 Optics center, receiver
- 2 Optics center, transmitter
- 3 Plug M 8 or connection cable
- 4 Sensitivity control
- 5 Light/dark rotary switch:  
L = light switching  
D = dark switching
- 6 Orange LED indicator (Status output)
- 7 Green LED signal strength indicator (Operating reserve)



**Connection type**

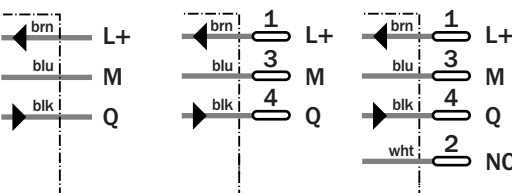
WT 160-E152	WT 160-E350	WT 160-E450
WT 160-E162	WT 160-E360	WT 160-E460
WT 160-F152	WT 160-F350	WT 160-F450
WT 160-F162	WT 160-F360	WT 160-F460



3x0.2 mm<sup>2</sup>

3 pin, M 8

4 pin, M 8



**Accessories**

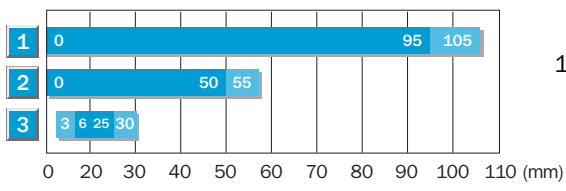
- Cable receptacles
- Mounting bracket (included)

NC = not connected

Specifications		WT 160-	F152	F350	F450	E152	E350	E450	F162	F360	F460	E162	E360	E460
Housing shape	Horizontal													
	Vertical													
Scanning distance, typ. max.	0 ... 105 mm <sup>1)2)</sup>													
Operating scanning distance	0 ... 100 mm <sup>1)2)</sup>													
Adjustable sensitivity	Potentiometer, 2 rotations w. scaling 270°													
Light source <sup>3)</sup> , light type	LED, red light													
Light spot diameter	Approx. 100 mm at 100 mm distance													
Transmitter dispersion angle	Approx. 40°													
Supply voltage V <sub>S</sub>	DC 10 ... 30 V <sup>4)</sup>													
Residual ripple <sup>5)</sup>	± 10 %													
Current consumption <sup>6)</sup>	≤ 25 mA													
Switching outputs	PNP, open collector: Q NPN, open collector: Q													
Output current I <sub>A</sub> max.	100 mA													
Light receiver, switching type	Light/dark switching per rotary switch													
Response time <sup>7)/</sup> Max. switching frequ. <sup>9)</sup>	≤ 0.5 ms / 1000/s													
Connection type: connection cable	PVC, 2 m <sup>9)</sup> ; 3 x 0.2 mm <sup>2</sup> , ø 4.2 mm													
	plug	3 pin, M8												
	plug	4 pin, M8												
VDE protection class <sup>10)</sup>	□													
Protection circuits <sup>11)</sup>	A, B, C, D													
Enclosure rating	IP 67													
Ambient temperature	Operation -25... +55 °C													
	Storage -40 ... +70 °C													
Weight	With connection cable approx. 60 g													
	With plug approx. 20 g													
Housing material	Housing: PBT; optics: PMMA													

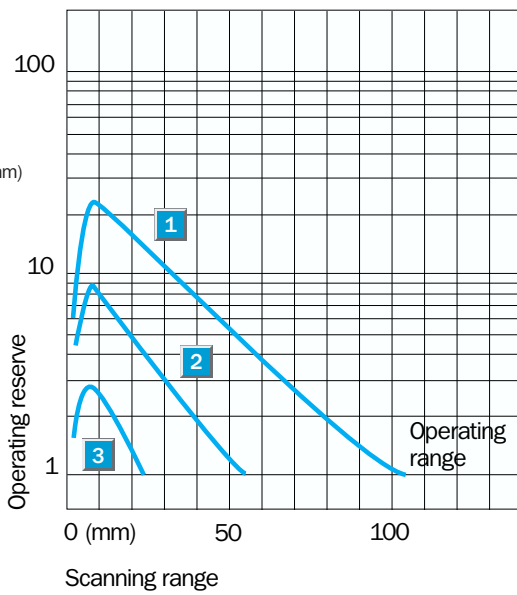
- 1) Scanned material with 90 % reflectance (with reference to standard white according to DIN 5033)
- 2) Object size 30 x 30 mm
- 3) Average service life 100,000 h at T<sub>U</sub> = +25 °C
- 4) Limit values
- 5) May not exceed or fall short of V<sub>S</sub> tolerances
- 6) Without load
- 7) Signal operating time with ohmic load
- 8) With light/dark ratio 1:1
- 9) Do not bend connection cable below 0 °C
- 10) Rated voltage DC 50 V
- 11) A = V<sub>S</sub> connections reverse-polarity protected  
B = Inputs and outputs reverse-polarity protected  
C = Interference pulse suppression  
D = Outputs overload and short-circuit protected

**Scanning distance**



■ Operating scanning distance  
■ Typ. max. scanning distance

- 1 Scanning range on white, 90 % reflectance
- 2 Scanning range on gray, 18 % reflectance
- 3 Scanning range on black, 6 % reflectance



**Ordering information**

Type	Order no.
WT 160-F152	6 022 799
WT 160-F350	6 022 803
WT 160-F450	6 022 804
WT 160-F162	6 022 801
WT 160-F360	6 022 805
WT 160-F460	6 022 806
WT 160-E152	6 022 791
WT 160-E350	6 022 795
WT 160-E450	6 022 796
WT 160-E162	6 022 793
WT 160-E360	6 022 797
WT 160-E460	6 022 798