Detailed technical data

Features

	WT2 Flat	WS/WE2 Flat
Sensor principle	Photoelectric proximity sensor	Through-beam photoelectric sensor
Detection principle	Energetic	–
Dimensions (W x H x D)	14 mm x 19.5 mm x 3.5 mm	12 mm x 20 mm x 3.5 mm
Housing design (light emission)	Rectangular	
Sensing range max.	1 mm ... 115 mm [1] (depending on type)	0 m ... 0.5 m
Sensing range	1 mm ... 115 mm [1] (depending on type)	0 m ... 0.4 m
Type of light	Visible red light	
Light source [2]	LED	
Light spot size (distance)	–	Ø 10 mm (100 mm)
Wave length	660 nm	

[1] Object with 90 % reflectance (referred to standard white, DIN 5033)
[2] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

Supply voltage [1]	12 V DC ... 24 V DC
Ripple [2]	≤ 5 V_{pp}
Output type	PNP / NPN (depending on type)
Switching mode	Light switching / Dark-switching (depending on type)
Signal voltage PNP HIGH/LOW	Approx. V_S – 1.8 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. V_S / < 1.8 V
Output current $I_{max.}$	≤ 50 mA
Response time [3]	≤ 0.5 ms
Switching frequency [4]	1,000 Hz
Connection type	Cable, 2 m [5] / Cable with connector, M8, 200 mm [5] (depending on type)
Circuit protection	A [6], C [7], D [8]
Weight	20 g
Reverse polarity protection	✔
Short-circuit protection	✔
Housing material	PC
Optics material	PC
Enclosure rating	IP 67
Ambient operating temperature	–20 °C ... +55 °C
Ambient storage temperature	–40 °C ... +75 °C

[1] +- 10 %.
[2] May not exceed or fall short of V_S tolerances.
[3] Signal transit time with resistive load.
[4] With light/dark ratio 1:1.
[5] Do not bend below 0 °C.
[6] A = V_S connections reverse-polarity protected.
[7] C = interference suppression.
[8] D = outputs overcurrent and short-circuit protected.

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Ordering information

Other models available at www.mysick.com/en/W2_Flat

WT2 Flat

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** energetic

Sensing range max. [1]	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
1 mm ... 9 mm	PNP	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-P170	6030588
			Cable with connector M8, 3-pin, 200 mm, PVC	Cd-045	WT2F-P270	6030589
			Cable with connector M8, 4-pin, 200 mm, PVC	Cd-066	WT2F-P470	6030590
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-N170	6030587
2 mm ... 18 mm	PNP	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-P140	6030584
			Cable with connector M8, 3-pin, 200 mm, PVC	Cd-045	WT2F-P240	6030585
			Cable with connector M8, 4-pin, 200 mm, PVC	Cd-066	WT2F-P440	6030586
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-N140	6030583
2 mm ... 34 mm	PNP	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-P150	6030580
			Cable with connector M8, 3-pin, 200 mm, PVC	Cd-045	WT2F-P250	6030581
			Cable with connector M8, 4-pin, 200 mm, PVC	Cd-066	WT2F-P450	6030582
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-N150	6030576
		Dark-switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-E150	6043902
4 mm ... 115 mm	PNP	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-P180	6030573
			Cable with connector M8, 3-pin, 200 mm, PVC	Cd-045	WT2F-P280	6030574
			Cable with connector M8, 4-pin, 200 mm, PVC	Cd-066	WT2F-P480	6030575
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	Cd-043	WT2F-N180	6030572

[1] Object with 90 % reflectance (referred to standard white, DIN 5033)

WS/WE2 Flat

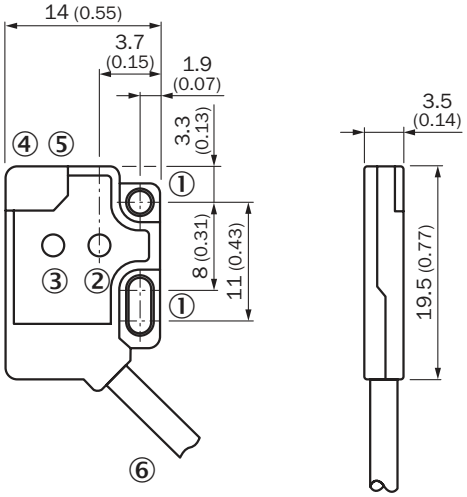
- **Sensor principle:** through-beam photoelectric sensor

Sensing range max.	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
0 m ... 0.5 m	PNP	Light switching	Cable, 3-wire, 2 m, PVC	Cd-049	WS/WE2F-P110	6049355
			Cable with connector M8, 3-pin, 200 mm, PVC	Cd-051	WS/WE2F-P210	6030566
		Dark-switching	Cable, 3-wire, 2 m, PVC	Cd-049	WS/WE2F-F110	6030569
			Cable with connector M8, 3-pin, 200 mm, PVC	Cd-051	WS/WE2F-F210	6030570
			Cable with connector M8, 4-pin, 200 mm, PVC	Cd-057	WS/WE2F-F410	6030571
	NPN	Light switching	Cable, 3-wire, 2 m, PVC	Cd-049	WS/WE2F-N110	6030540
		Dark-switching	Cable, 3-wire, 2 m, PVC	Cd-049	WS/WE2F-E110	6030554

Dimensional drawings

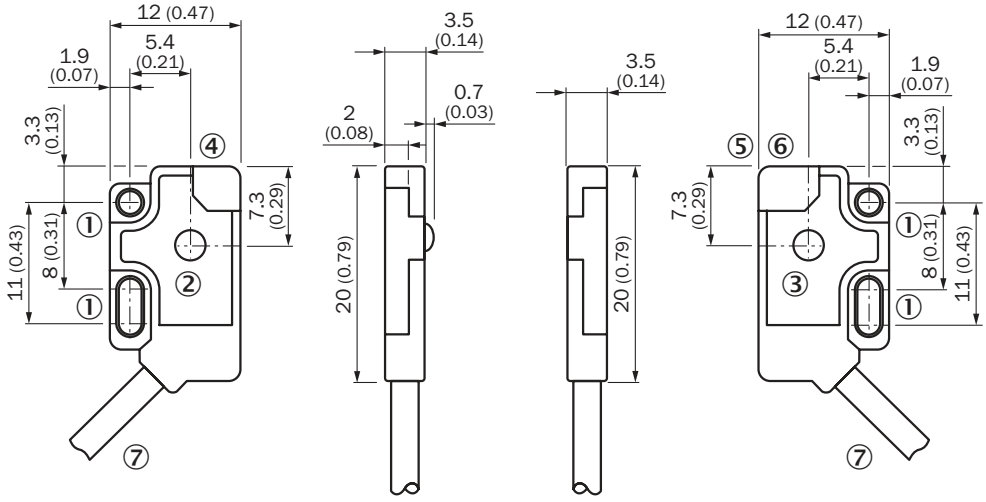
Dimensions in mm (inch)

WT2F



① Mounting holes, Ø 2.1 mm
② Optical axis, sender
③ Optical axis, receiver
④ LED indicator orange: switching output active
⑤ LED indicator green: strength indicator
⑥ Connection

WS/WE2F

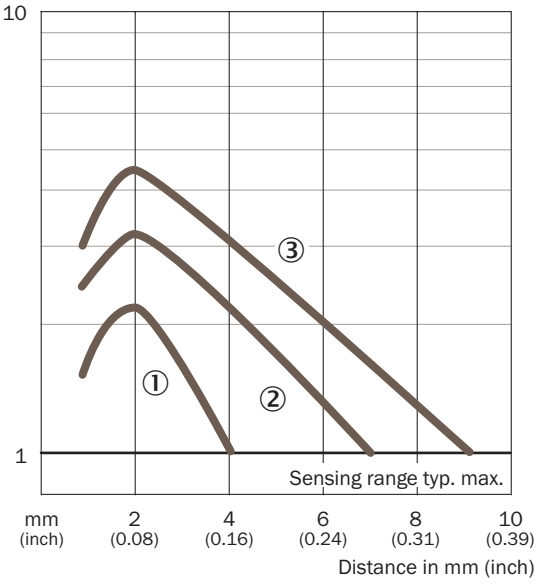


① Mounting holes, Ø 2.1 mm
② Optical axis, receiver
③ Optical axis, sender
④ LED indicator green
⑤ LED indicator orange
⑥ LED indicator green
⑦ Connection

Characteristic curves

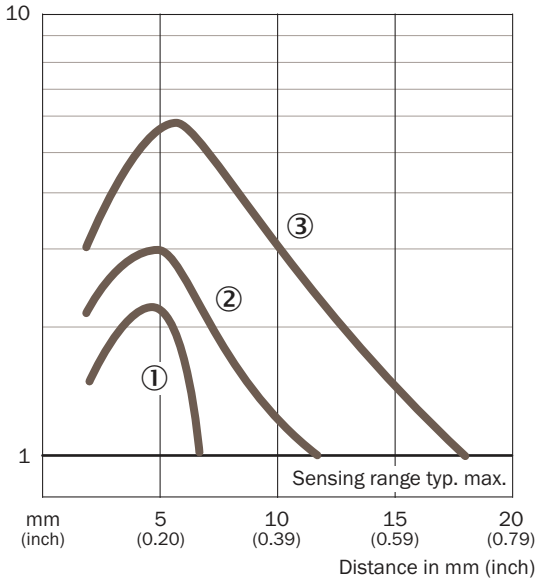
Black-white shift

WT2F, 9 mm



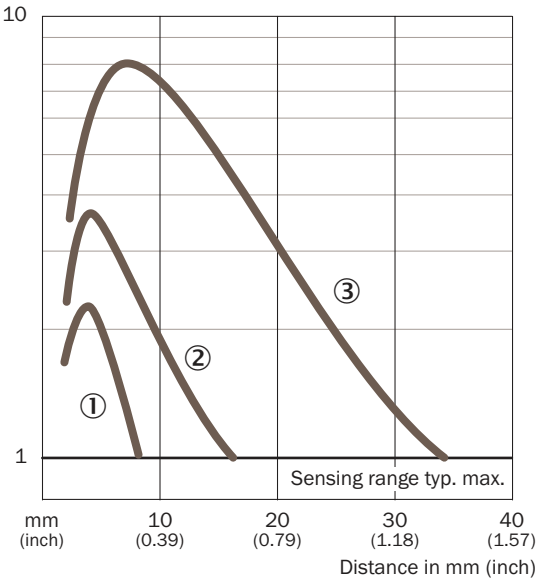
① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

WT2F, 18 mm



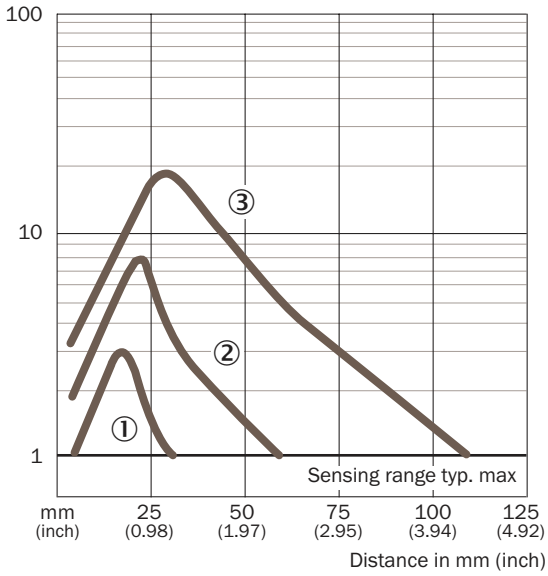
① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

WT2F, 34 mm



① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

WT2F, 115 mm

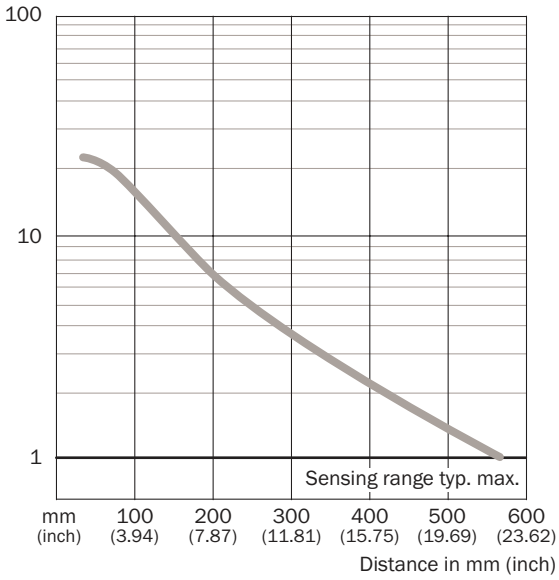


① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

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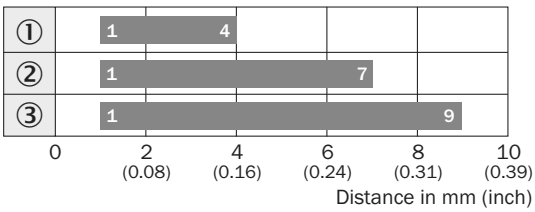
Operating reserve

WS/WE2F



Bar diagrams

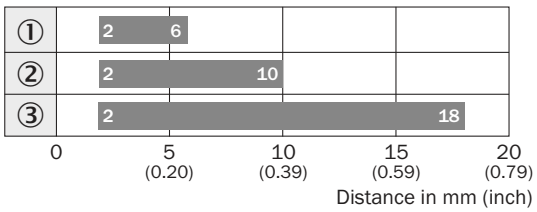
WT2F, 9 mm



Sensing range

① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

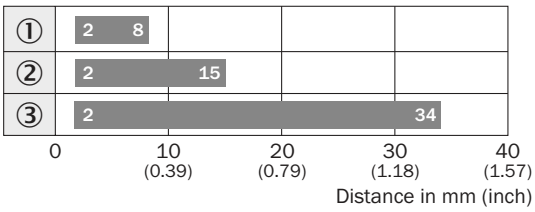
WT2F, 18 mm



Sensing range

① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

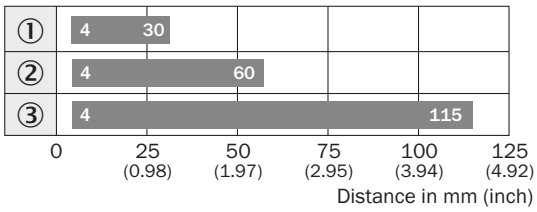
WT2F, 34 mm



Sensing range

① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

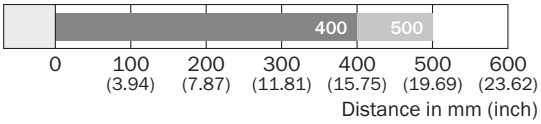
WT2F, 115 mm



Sensing range

① Sensing range on black, 6 % remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90 % remission

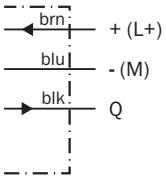
WS/WE2F



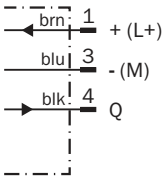
Sensing range Sensing range typ. max.

Connection diagram

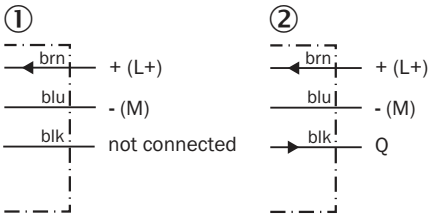
Cd-043



Cd-045

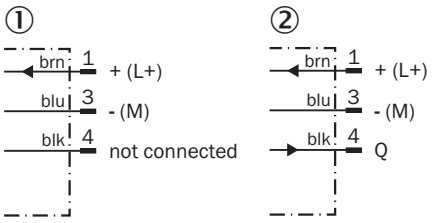


Cd-049



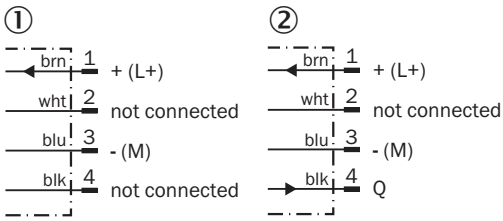
① Sender
② Receiver

Cd-051



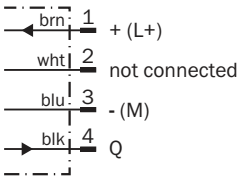
① Sender
② Receiver

Cd-057



① Sender
② Receiver

Cd-066



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Recommended accessories

Plug connectors and cables

Connecting cable (female connector-open)

- **Cable material:** PVC
- **Connector material:** TPU

Figure	Connection type head A	Connection type head B	Connecting cable	Enclosure rating	Model name	Part no.
	Female connector, M8, 3-pin, straight	Cable, open conductor heads	2 m, 3-wire	IP 67	DOL-0803-G02M	6010785
			5 m, 3-wire	IP 67	DOL-0803-G05M	6022009
	Female connector, M8, 3-pin, angled	Cable, open conductor heads	2 m, 3-wire	IP 67	DOL-0803-W02M	6008489
			5 m, 3-wire	IP 67	DOL-0803-W05M	6022010
	Female connector, M8, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-0804-G02M	6009870
			5 m, 4-wire	IP 67	DOL-0804-G05M	6009872
	Female connector, M8, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-0804-W02M	6009871
			5 m, 4-wire	IP 67	DOL-0804-W05M	6009873

Female connector (ready to assemble)

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.
	Female connector, M8, 3-pin, straight	Screw-type terminals	PBT	IP 67	DOS-0803-G	7902077
	Female connector, M8, 3-pin, angled	Pin penetration	PBT	IP 67	DOS-0803-W	7902078
	Female connector, M8, 4-pin, straight	Screw-type terminals	PBT	IP 67	DOS-0804-G	6009974
	Female connector, M8, 4-pin, angled	Pin penetration	PBT	IP 67	DOS-0804-W	6009975

Male connector (ready to assemble)

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.
	Male connector, M8, 3-pin, straight	Screw-type terminals	PBT	IP 67	STE-0803-G	6037322
	Male connector, M8, 4-pin, straight	Screw-type terminals	PBT	IP 67	STE-0804-G	6037323

→ For additional accessories, please see page L-861

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