

WTB250-2R1551

W250-2

COMPACT PHOTOELECTRIC SENSORS





Ordering information

Туре	Part no.
WTB250-2R1551	6044693

Included in delivery: BEF-W250 (1)

Other models and accessories → www.sick.com/W250-2

Illustration may differ



Detailed technical data

Features

Sensor/ detection principle	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D)	20 mm x 60 mm x 43.9 mm
Housing design (light emission)	Rectangular
Sensing range max.	200 mm 1,000 mm ¹⁾
Sensing range	200 mm 1,000 mm ¹⁾
Type of light	Visible red light
Light source	LED ²⁾
Light spot size (distance)	Ø 35 mm (1,000 mm)
Angle of dispersion	Approx. 3°
Adjustment	Potentiometer, 2 turns ³⁾ Potentiometer, 2 rotations

 $^{^{1)}}$ Object with 90 % reflectance (referred to standard white, DIN 5033).

Mechanics/electronics

Supply voltage	24 V DC 240 V DC ¹⁾
	24 V AC/DC 240 V AC/DC ¹⁾

^{1) +10 %}

 $^{^{2)}}$ Average service life: 100,000 h at T_{U} = +25 °C.

³⁾ With position indicator.

 $^{^{2)}\,\}mbox{Provide}$ suitable spark suppression for inductive or capacitive loads.

³⁾ With light/dark ratio 1:1.

 $^{^{4)}}$ Do not bend below 0 °C.

 $^{^{5)}}$ A = V_S connections reverse-polarity protected.

⁶⁾ C = interference suppression.

 $^{^{7)}}$ Reference voltage: 250 V AC.

⁸⁾ The AC/DC devices comply with the Radio Safety Requirements for the industrial sector (Radio Safety Class A). They may cause radio interference if used in a residential area.

Switching output Output function Change-over contacts Switching mode Light switching 2) Switching current (switching voltage) 3 A (240 V AC) 3 A (30 V DC) Response time \$ 15 ms Switching frequency 33 Hz 3) Connection type Cable, 5-wire, 2 m 4) Cable material PVC Conductor cross-section 0.76 mm² Cable diameter Circuit protection A 5) C 6) Protection class II 7) Overvoltage category 2 Weight Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating Items supplied BEF-W250 mounting bracket Usage category A (2) A (2) Change-over contacts Light switching 2) Light switc		.=.
Output function Change-over contacts Switching mode Light switching 2 Switching current (switching voltage) 3 A (240 V AC) 3 A (30 V DC) Response time ≤ 15 ms Switching frequency 33 Hz 3 Connection type Cable, 5-wire, 2 m 4) Cable material PVC Conductor cross-section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection A 5) C 6) Protection class II 7) Overvoltage category 2 Weight Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating Items supplied Usage category AC-15, DC-13, according to EN 60947-1 EMC Ambient storage temperature -25 °C+55 °C Ambient storage temperature -40 °C+70 °C	Power consumption	≤ 5 VA
Switching mode Light switching ²) Switching current (switching voltage) 3 A (240 V AC) 3 A (30 V DC) Response time ≤ 15 ms Switching frequency 33 Hz ³) Connection type Cable, 5-wire, 2 m ⁴) Cable material PVC Conductor cross-section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection A ⁵) C °) C °) Protection class II ⁻) Overvoltage category 2 Weight 160 g Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 ° C +55 ° C Ambient storage temperature -40 ° C +70 ° C	Switching output	Relay, electrically isolated ²⁾
Switching current (switching voltage) 3 A (240 V AC) 3 A (30 V DC) Response time ≤ 15 ms Switching frequency 33 Hz ³) Connection type Cable, 5-wire, 2 m ⁴) Conductor cross-section 0.76 mm² Cable diameter Circuit protection A ⁵) C °) Protection class II ⁻) Overvoltage category Weight 160 g Housing material Optics material Optics material Plastic, ABS Optics material Plastic, PMMA Enclosure rating IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC Ambient operating temperature -25 ° C +55 ° C Ambient storage temperature -40 ° C +70 ° C	Output function	Change-over contacts
Response time ≤ 15 ms Switching frequency 33 Hz ³) Connection type Cable, 5-wire, 2 m ⁴) Cable material PVC Conductor cross-section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection 45 C 60 C 6	Switching mode	Light switching ²⁾
Switching frequency Connection type Cable, 5-wire, 2 m ⁴⁾ Cable material PVC Conductor cross-section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection A 5) C 6) Protection class II 7) Overvoltage category 2 Weight Housing material Optics material Plastic, ABS Optics material Plastic, PMMA Enclosure rating Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC Ambient operating temperature A-0 ° C +70 ° C	Switching current (switching voltage)	
Connection type Cable, 5-wire, 2 m 4) Cable material PVC Conductor cross-section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection A 5) C 6) Protection class II 7) Overvoltage category 2 Weight Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC Ambient operating temperature -25 ° C +55 ° C Ambient storage temperature -40 ° C +70 ° C	Response time	≤ 15 ms
Cable material Conductor cross-section Cable diameter Ø 6.4 mm Circuit protection A 5) C 6) Protection class II 7) Overvoltage category Weight Housing material Optics material Plastic, PMMA Enclosure rating Items supplied BEF-W250 mounting bracket Usage category EMC Ambient operating temperature Ac0 5 C +55 ° C Ambient storage temperature PVC Ve 6 mm² Ø 6.4 mm A 5) C 6) Protection class II 7) Poc 6 Poc 6 Protection class II 7) Poc 6 Protection class II 7) Poc 6 Poc 8 A 5 C 6 Protection class II 7) Poc 6 Poc 9 A 5 C 6 Poc 9 A 5 C 6 Ambient storage temperature PVC A 5 C 6 A mm PVC A 6 A 7 B 7 C 7 C 8 A 7 C 9 C 9 A 7 C 9 C 9 A 7 C 9 A 7 C 9 A 7 C 9 A 7 C 9 A 7 C 9 A 7 A 7 C 9 A 7 A 7 C 9 A 7 A 7 C 9 A 7 A 7 C 9 A 7 A 7 C 9 A 7 A 7 C 9 A 7 A 7 A 7 C 9 A 7 A 7 A 7 C 9 A 7 A 7 A 7 C 9 A 7 A 7 A 7 A 7 A 7 A 7 A 7 A	Switching frequency	33 Hz ³⁾
Conductor cross-section Cable diameter Ø 6.4 mm Circuit protection A 5	Connection type	Cable, 5-wire, 2 m ⁴⁾
Cable diameter Circuit protection A 5) C 6) Protection class II 7) Overvoltage category 2 Weight Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC Ambient operating temperature -25 ° C +55 ° C Ambient storage temperature -40 ° C +70 ° C	Cable material	PVC
Circuit protection A 5) C 6) Protection class II 7) Overvoltage category Weight 160 g Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Conductor cross-section	0.76 mm ²
C 6) Protection class 7) Overvoltage category 2 Weight 160 g Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 ° C +55 ° C Ambient storage temperature -40 ° C +70 ° C	Cable diameter	Ø 6.4 mm
Overvoltage category 2 Weight 160 g Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Circuit protection	
Weight Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 ° C +55 ° C -40 ° C +70 ° C	Protection class	II ⁷⁾
Housing material Plastic, ABS Plastic, PMMA Enclosure rating IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Overvoltage category	2
Optics material Plastic, PMMA IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 ° C +55 ° C -40 ° C +70 ° C	Weight	160 g
Enclosure ratingIP67Items suppliedBEF-W250 mounting bracketUsage categoryAC-15, DC-13, according to EN 60947-1EMCEN 60947-5-2 8)Ambient operating temperature-25 °C +55 °CAmbient storage temperature-40 °C +70 °C	Housing material	Plastic, ABS
Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C Ambient storage temperature -40 °C +70 °C	Optics material	Plastic, PMMA
Usage category AC-15, DC-13, according to EN 60947-1 EMC EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C Ambient storage temperature -40 °C +70 °C	Enclosure rating	IP67
EMC EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C Ambient storage temperature -40 °C +70 °C	Items supplied	BEF-W250 mounting bracket
Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Usage category	AC-15, DC-13, according to EN 60947-1
Ambient storage temperature -40 °C +70 °C	ЕМС	EN 60947-5-2 ⁸⁾
	Ambient operating temperature	-25 °C +55 °C
UL File No. NRKH2.E300503 & NRKH8.E300503	Ambient storage temperature	-40 °C +70 °C
	UL File No.	NRKH2.E300503 & NRKH8.E300503

¹⁾ ±10 %.

Classifications

ECI@ss 5.0	27270904
ECI@ss 5.1.4	27270904
ECI@ss 6.0	27270904
ECI@ss 6.2	27270904
ECI@ss 7.0	27270904
ECI@ss 8.0	27270904
ECI@ss 8.1	27270904

 $^{^{2)}}$ Provide suitable spark suppression for inductive or capacitive loads.

 $^{^{}m 3)}$ With light/dark ratio 1:1.

⁴⁾ Do not bend below 0 °C.

 $^{^{5)}}$ A = $\rm V_{S}$ connections reverse-polarity protected.

 $^{^{6)}}$ C = interference suppression.

⁷⁾ Reference voltage: 250 V AC.

⁸⁾ The AC/DC devices comply with the Radio Safety Requirements for the industrial sector (Radio Safety Class A). They may cause radio interference if used in a residential area.

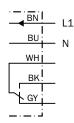
WTB250-2R1551 | W250-2

COMPACT PHOTOELECTRIC SENSORS

ECI@ss 9.0	27270904
ECI@ss 10.0	27270904
ECI@ss 11.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
UNSPSC 16.0901	39121528

Connection diagram

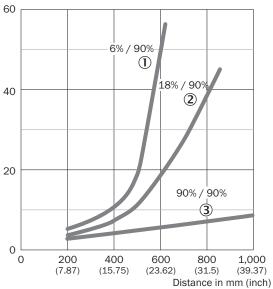
Cd-163



Characteristic curve

WTB250-2, 1000 mm

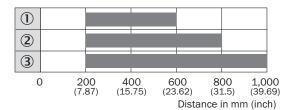
% of sensing range



- ① Sensing range on black, white background
- ② Sensing range on gray, white background
- 3 Sensing range on white, white background

Sensing range diagram

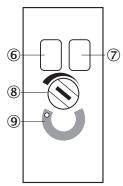
WTB250-2, 1000 mm



- Sensing range
- ① Sensing range on black, white background
- ② Sensing range on gray, white background
- 3 Sensing range on white, white background

Adjustments

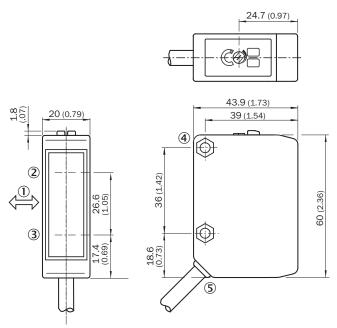
WTB250-2



- ⑥ LED indicator green: Stability indicator
- ① LED indicator yellow: Status of received light beam
- Sensing range adjustment: potentiometer
- Position indicator for sensitivity setting (270°)

Dimensional drawing (Dimensions in mm (inch))

WTB250-2, AC/DC, cable



- ① Standard direction of the material being detected
- 2 Axis of sender
- 3 Axis of receiver
- 4 Mounting hole $\ensuremath{\text{g}}$ 4.2 mm, for M4 hexagon nuts on both sides
- ⑤ Connection cable

Recommended accessories

Other models and accessories → www.sick.com/W250-2

	Brief description	Туре	Part no.
Plug connectors and cables			
	Head A: male connector, M12, 5-pin, straight Cable: unshielded For field bus technology	STE-1205-G	6022083

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