

WSE250-2R1631

W250-2

PHOTOELECTRIC SENSORS





Ordering information

Туре	part no.
WSE250-2R1631	6044708

Included in delivery: BEF-W250 (1)

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

Illustration may differ



Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	20 mm x 60 mm x 43.9 mm
Housing design (light emission)	Rectangular
Sensing range max.	0 m 50 m
Sensing range	0 m 40 m
Focus	Approx. 2°
Type of light	Visible red light
Light source	LED ¹⁾
Light spot size (distance)	Ø 0.6 m (20 m)
Angle of dispersion	Approx. 2°
Adjustment	Potentiometer, 2 turns ²⁾

 $^{^{1)}}$ Average service life: 100,000 h at T_U = +25 °C.

Mechanics/electronics

¹⁾ +- 10%.

 $^{^{2)}}$ 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.

Power consumption, sender \$ 3.5 VA Power consumption, receiver \$ 3.5 VA Switching output Relay, electrically isolated ²⁾ Output function Change-over contacts Switching mode Light switching ²⁾ Switching current (switching voitage) 3A (200 V AC) (3A (300 V CO) Response time \$ 15 ms Switching frequency 33 hz ³⁾ Angle of reception 20° Connection type Cable, 5-wire, 5 m ⁴⁾ Cable material Plestic, PVC Conductor cross section 0.76 mm² Circuit protection A ⁹ Circuit protection A ⁹ Protection class II ⁷⁾ Overvoltage category 2 Weight 660 g Housing material Plestic, ABS Optics material Plestic, ABS Optics material Plestic, D-C13 Items supplied EEF-W250 mounting bracket Usage category AC16, D-C13 According to EN 60947-1 Electromagnetic compatibility (EMC) EN 60947-52 ⁸⁾ Amb		24 V AC/DC 240 V AC/DC ¹⁾
Switching output Output function Change-over contacts Switching mode Light switching 20 Switching current (switching voltage) 3 A (240 V AC) 3 A (30 V DC) Response time \$15 ms Switching frequency 33 Hz 30 Angle of reception Connection type Cable, 5-wire, 5 m 40 Cable material Plastic, PVC Conductor cross section Co	Power consumption, sender	
Output function Change-over contacts Switching mode Light switching 2 Switching current (switching voltage) 3A (240 V AC) 3A (30 V DC) Response time \$15 ms Switching frequency 33 Hz 3 Angle of reception 20° Connection type Cable, 5-wire, 5 m 4 Cable material Plastic, PVC Conductor cross section 0.76 mm² Cable diameter Circuit protection A5 C6 Protection class II 7 Overvoltage category 2 Weight 660 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 60947-52 Ambient operating temperature - 25 °C +55 °C Ambient temperature, storage AS A	Power consumption, receiver	≤ 3.5 VA
Switching mode Light switching 2³ Switching current (switching voltage) 3A (240 V AC) 3A (30 V DC) Response time \$ 15 ms Switching frequency 33 Hz 2³ Angle of reception 20° Connection type Cable, 5-wire, 5 m 4³ Cable material Plastic, PVC Conductor cross section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection A²³ C°° Protection class II 7³ Overvoltage category 2 Weight 660 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 Electromagnetic compatibility (EMC) EN 60947-52 8³ Ambient operating temperature -25 °C +55 °C Ambient temperature, storage -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) Angle of reception Connection type Cable, 5-wire, 5 m 4) Cable material Plastic, PVC Conductor cross section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection A 5) C 6) Protection class 17) Overvoltage category Weight Housing material Plastic, ABS Optics material Plastic, PMMA Enclosure rating 1967 tems supplied BEF-W250 mounting bracket Usage category AC-15, DC-13 According to EN 60947-1 Electromagnetic compatibility (EMC) Ambient operating temperature A-0 °C +70 °C AC	Output function	Change-over contacts
Response time \$15 ms Switching frequency 33 Hz 3) Angle of reception 20° Connection type Cable, 5-wire, 5 m 4) Cable material Plastic, PVC Conductor cross section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection ass III 7) Overvoltage category 2 Weight 660 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 Electromagnetic compatibility (EMC) EN 60947-5-2 8) Ambient operating temperature -25 ° C +55 ° C Ambient temperature, storage AC-15, DC-15 of C +70 ° C	Switching mode	Light switching ²⁾
Switching frequency Angle of reception Connection type Cable, 5-wire, 5 m 4) Cable material Plastic, PVC Conductor cross section O.76 mm² Cable diameter Ø.6.4 mm Circuit protection A 5) C 6) Protection class II 7) Overvoltage category Veight 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 60947-5.2 8) Ambient operating temperature A-0 ° C +70 ° C Ambient temperature, storage	Switching current (switching voltage)	
Angle of reception 20° Connection type Cable, 5-wire, 5 m 4) Cable material Plastic, PVC Conductor cross section 0.76 mm² Cable diameter Ø 6.4 mm Circuit protection A 5 C 60 Protection class II 7) Overvoltage category 2 Weight 660 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 Electromagnetic compatibility (EMC) EN 60947-5-2 8) Ambient operating temperature -25 ° C +55 ° C Ambient temperature, storage -40 ° C +70 ° C	Response time	≤ 15 ms
Connection type Cable, 5-wire, 5 m 4) Cable material Plastic, 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, PMMA Plastic, PMMA Enclosure rating Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13 According to EN 60947-1 Electromagnetic compatibility (EMC) Ambient operating temperature -25 ° C +55 ° C Ambient temperature, storage AC-10, DC-10, The Conductive of the Conducti	Switching frequency	33 Hz ³⁾
Cable material Conductor cross section Cable diameter Circuit protection A ⁵ C ⁶ Protection class II ⁷ Overvoltage category Veight 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 Electromagnetic compatibility (EMC) Ambient operating temperature -25 °C +55 °C Ambient temperature, storage Plastic, PVC O.76 mm² AC-15 mm	Angle of reception	20°
Conductor cross section Cable diameter Circuit protection A 5) C 6) Protection class II 7) Overvoltage category Weight Housing material Optics material Plastic, ABS Optics material Plof7 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13 According to EN 60947-1 Electromagnetic compatibility (EMC) Ambient operating temperature -25 °C +55 °C Ambient temperature, storage	Connection type	Cable, 5-wire, 5 m ⁴⁾
Cable diameter Circuit protection A 5 C 6 C 6 C 6 C 6 C 6 C 6 C 6 C 6 C 6 C	Cable material	Plastic, PVC
Circuit protection A 5 c 6 c 6 c 6 c 6 c 6 c 6 c 6 c 6 c 6 c	Conductor cross section	0.76 mm ²
Protection classII 7)Overvoltage category2Weight660 gHousing materialPlastic, ABSOptics materialPlastic, PMMAEnclosure ratingIP67Items suppliedBEF-W250 mounting bracketUsage categoryAC-15, DC-13 According to EN 60947-1Electromagnetic compatibility (EMC)EN 60947-5-2 8)Ambient operating temperature-25 °C +55 °CAmbient temperature, storage-40 °C +70 °C	Cable diameter	Ø 6.4 mm
Overvoltage category2Weight660 gHousing materialPlastic, ABSOptics materialPlastic, PMMAEnclosure ratingIP67Items suppliedBEF-W250 mounting bracketUsage categoryAC-15, DC-13 According to EN 60947-1Electromagnetic compatibility (EMC)EN 60947-5-2 8)Ambient operating temperature-25 °C +55 °CAmbient temperature, storage-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 Electromagnetic compatibility (EMC) Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Protection class	II ⁷⁾
Housing material Plastic, ABS Optics material Plastic, PMMA IP67 Items supplied BEF-W250 mounting bracket Usage category AC-15, DC-13 According to EN 60947-1 Electromagnetic compatibility (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 Electromagnetic compatibility (EMC) EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C Ambient temperature, storage Plastic, PMMA IP67 BEF-W250 mounting bracket AC-15, DC-13 According to EN 60947-1 Electromagnetic compatibility (EMC) EN 60947-5-2 8) -25 °C +70 °C	Weight	660 g
Enclosure ratingIP67Items suppliedBEF-W250 mounting bracketUsage categoryAC-15, DC-13 According to EN 60947-1Electromagnetic compatibility (EMC)EN 60947-5-2 8)Ambient operating temperature-25 °C +55 °CAmbient temperature, storage-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 Electromagnetic compatibility (EMC) EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Optics material	Plastic, PMMA
Usage category AC-15, DC-13 According to EN 60947-1 Electromagnetic compatibility (EMC) EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C Ambient temperature, storage -40 °C +70 °C	Enclosure rating	IP67
According to EN 60947-1 Electromagnetic compatibility (EMC) EN 60947-5-2 8) Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Items supplied	BEF-W250 mounting bracket
Ambient operating temperature -25 °C +55 °C -40 °C +70 °C	Usage category	
Ambient temperature, storage -40 °C +70 °C	Electromagnetic compatibility (EMC)	EN 60947-5-2 ⁸⁾
	Ambient operating temperature	-25 °C +55 °C
UL File No. NRKH2.E300503 & NRKH8.E300503	Ambient temperature, storage	-40 °C +70 °C
	UL File No.	NRKH2.E300503 & NRKH8.E300503

¹⁾ +- 10%

Safety-related parameters

MTTF _D	445 years
DC _{avg}	0 %

 $^{^{1)}}$ Only for devices containing electro-mechanical components. In this case, the MTTF_D value of the entire device must be calculated from the given B_{10D} value, the number of switching cycles and the given MTTF_D value.

 $^{^{2)}\,\}mbox{Provide}$ 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 = 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.

B _{10D}	68,000 Switching cycles ¹⁾

 $^{^{1)}}$ Only for devices containing electro-mechanical components. In this case, the MTTF_D value of the entire device must be calculated from the given B_{10D} value, the number of switching cycles and the given MTTF_D value.

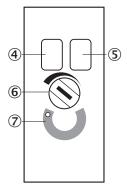
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
CCC certificate	✓
cRUus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

Classifications

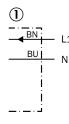
ECLASS 5.0	27270901
ECLASS 5.1.4	27270901
ECLASS 6.0	27270901
ECLASS 6.2	27270901
ECLASS 7.0	27270901
ECLASS 8.0	27270901
ECLASS 8.1	27270901
ECLASS 9.0	27270901
ECLASS 10.0	27270901
ECLASS 11.0	27270901
ECLASS 12.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
UNSPSC 16.0901	39121528

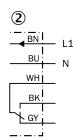
Adjustments WSE250-2, sender



- ④ LED indicator green: Stability indicator
- ⑤ LED indicator yellow: Status of received light beam
- ⑤ Sensitivity control: potentiometer
- 7 Position indicator for sensitivity setting (270°)

Connection diagram Cd-228

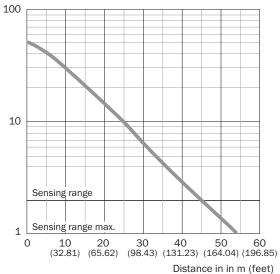




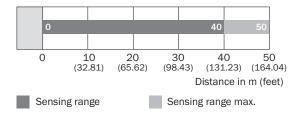
- ① sender
- 2 receiver

Characteristic curve WSE250-2

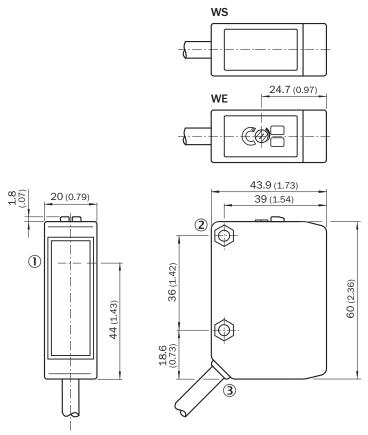
Operating reserve



Sensing range diagram WSE250-2



Dimensional drawing WSE250-2, AC/DC, cable



Dimensions in mm (inch)

- ① Center of the optical axis, sender (WS 250), receiver (WE 250)
- ② mounting hole ø 4.2 mm, for M4 hexagon nuts on both sides
- ③ Connection cable

Recommended accessories

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

	Brief description	Туре	part no.	
Mounting syst	Mounting systems			
	 Description: Mounting bracket Material: Steel Details: Steel, zinc coated Items supplied: Mounting hardware included Suitable for: W250-2 	BEF-W250	5305850	
connectors ar	nd cables			
	Connection type head A: Male connector, M12, 5-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² Note: For field bus technology	STE-1205-G	6022083	

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

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