

Photoelectric retro-reflective sensor  
with laser light  
Operating instructions

<b>Laser Radiation</b> <b>DO NOT STARE INTO BEAM</b> <b>CLASS 2 LASER PRODUCT</b>	
	<b>Laser</b> <b>2</b>
EN/IEC 60825-1:2014 IEC60825-1:2007	
Maximum pulse power 2 mW Puls length: 4 µs Wavelength: 655 nm	
Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007	

### Safety specifications

- Read the operating instructions and the assembly instructions before starting operation.
- Connection, assembly and settings only by competent technicians.
- Protect the device against moisture and soiling when operating.
- No safety component in accordance with EU machine guidelines.

**Caution** Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

### Proper use

The WS / WE190L through-beam photoelectric switch is an optoelectronic sensor, that operates using a transmission unit (WS) and reception unit (WE). It is used for optical, noncontact detection of objects, animals, and people.

### Starting operation

- The devices WS / WE190L have complementary switching outputs: WE190L-P only:  
Q: dark-switching, if light interrupted, output HIGH,  
Q: light-switching, if light interrupted, output LOW.  
WE190L-N only:  
Q: dark-switching, if light received, output LOW,  
Q: light-switching, if light received, output HIGH.
- The following apply for connection in **B**: brn = brown, blu = blue, blk = black, wht = white.  
Connect cables.
- Use mounting holes (supplied) to mount WS and WE opposite each other and align roughly. Adjust for scanning range (see technical data at end of these operating instructions and see diagram; x=scanning range, y=operating reserve).  
Connect WS and WE to operating voltage (see type label).  
Adjustment of light reception:  
Determine the on / off points of the LED signal strength indicator (LED yellow) by swiveling the photoelectric reflex switch horizontally and vertically. Select the middle position, so that the red sender beam hits the reflector center. The yellow LED lights continuously.

### Maintenance

SICK photoelectric sensors do not require any maintenance.

We recommend doing the following regularly:

- clean the external lens surfaces
- check the screw connections and plug-in connections

No modifications may be made to devices.

Subject to change without notice. Specified product properties and technical data are not written guarantees.

# SICK

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## WS / WE190L Standard

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### Deutsch

Reflexions-Lichtschranke  
mit Laserlicht  
Betriebsanleitung

<b>Laserstrahlung</b> <b>NICHT IN STRAHL BLICKEN</b> <b>KLASSE 2 LASERPRODUKT</b>	
	<b>Laser</b> <b>2</b>
EN/IEC 60825-1:2014 IEC60825-1:2007	
Maximale Pulsleistung: 2 mW Impulsdauer: 4 µs Wellenlänge: 655 nm	
Entspricht 21 CFR 1040.10 und 1040.11 mit Ausnahme von Abweichungen nach Laser-Hinweis 50, 24. Juni 2007	

### Sicherheitshinweise

- Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie.
- Vor der Inbetriebnahme die Betriebsanleitung lesen.
- Anschluss, Montage und Einstellung nur durch Fachpersonal.
- Gerät bei der Inbetriebnahme vor Feuchte und Verunreinigung schützen.

**Vorsicht** Die Verwendung anderer Steuerungen, Einstellungen oder Vorgehensweisen als hier beschrieben kann zu gefährlicher Strahlenexposition führen.

### Bestimmungsgemäße Verwendung

Die Einweg-Lichtschranke WS / WE190L ist ein optoelektronischer Sensor, der mit einer Sende- (WS) und Empfangseinheit (WE) arbeitet. Sie wird zum optischen, berührungslosen Erfassen von Sachen, Tieren und Personen eingesetzt.

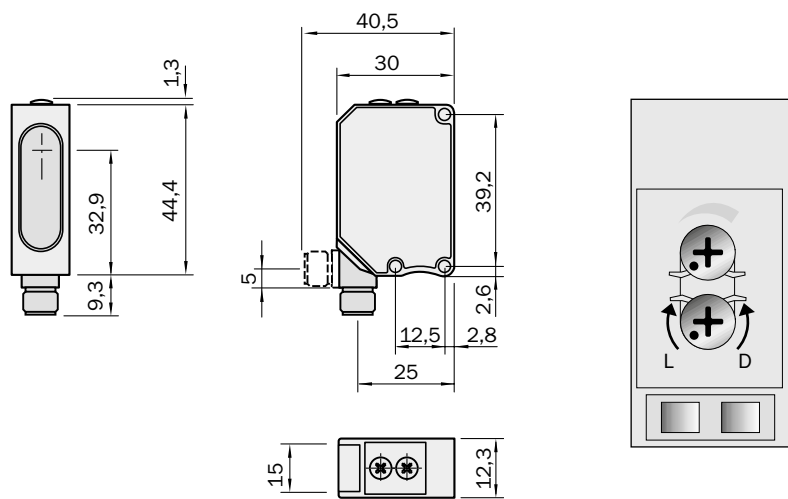
### Inbetriebnahme

Die Geräte WS / WE190L haben antivalente Schaltausgänge:

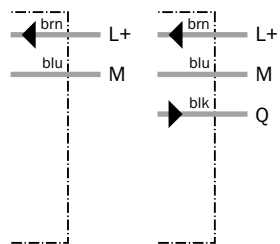
- Nur WE190L-P:  
Q: dunkelschaltend, bei Lichtunterbrechung Ausgang HIGH,  
Q: hellerschaltend, bei Lichtunterbrechung Ausgang LOW.

- Nur WE190L-N:  
Q: dunkelschaltend, bei Lichtempfang Ausgang LOW,  
Q: hellerschaltend, bei Lichtempfang Ausgang HIGH.

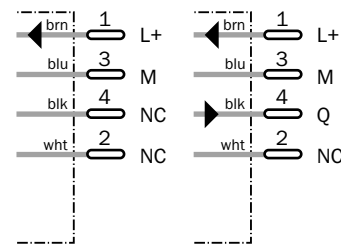
### A WS / WE190L



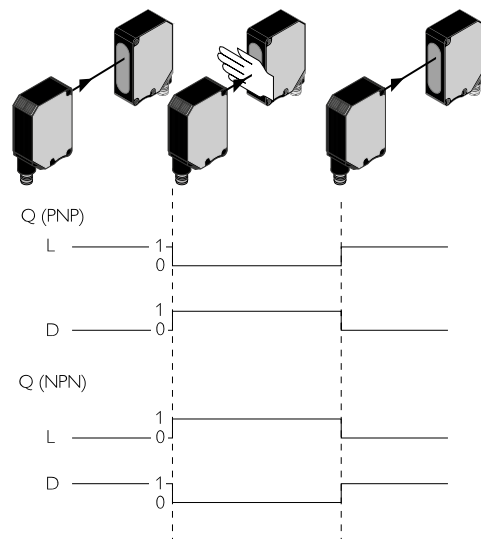
### B WS / WE190L-P132 WS / WE190L-N132



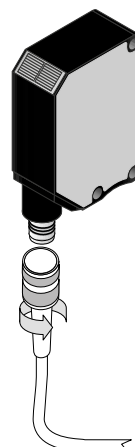
### WS / WE190L-P430 WS / WE190L-N430



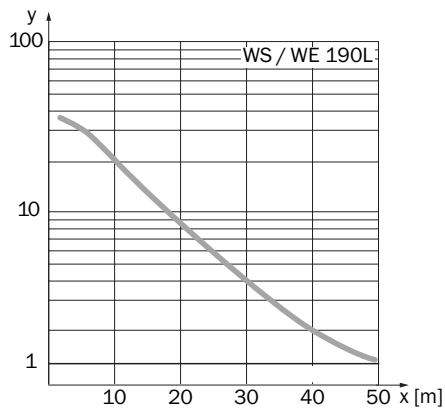
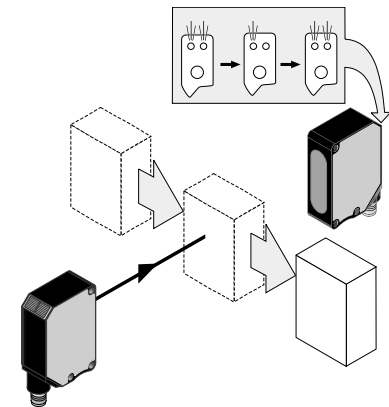
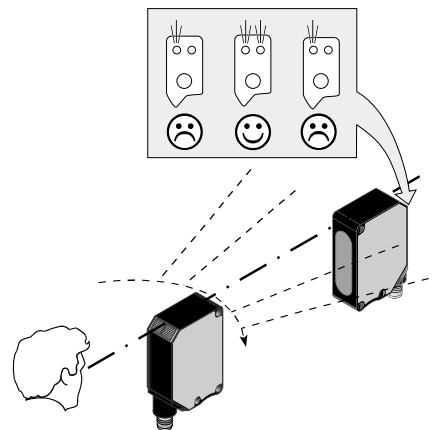
### 1



### 2



### 3



### WS / WE190L

Sensing range max.	Schaltabstand max.	Portée max.	Distância de comutação max.	50 m
Light spot diameter / distance	Lichtfleckdurchmesser / Entfernung	Diamètre de la tache lumineuse / distance	Diâmetro do ponto de luz / distância	40 mm / 10 m
Supply voltage U <sub>B</sub>	Versorgungsspannung U <sub>B</sub>	Tension d'alimentation U <sub>B</sub>	Tensão de alimentação U <sub>B</sub>	10 ... 30 V DC <sup>1)</sup>
Output current I <sub>max</sub>	Ausgangsstrom I <sub>max</sub>	Courant de sortie I <sub>max</sub>	Corrente de saída I <sub>max</sub>	< 100 mA
Response time	Ansprechzeit	Temps de réponse	Tempo de reação	< 0.5 ms
Switching frequency	Schaltfrequenz max.	Fréquence max.	Sequência max. de sinais	1000 / s
Enclosure rating	Schutzart	Type de protection	Tipo de proteção	IP 67
Protection class	Schutzklasse	Classe de protection	Classe de proteção	⊕
Circuit protection	Schutzschaltungen	Circuits de protection	Circuitos protetores	A, B <sup>2)</sup>
Ambient operating temperature	Betriebsumgebungstemperatur	Température ambiante	Temperatura ambiente de operação	-10 ... +40 °C
<sup>1)</sup> Limit values: Ripple max. 5 V <sub>SS</sub>	<sup>1)</sup> Grenzwerte: Restwertigkeit max. 5 V <sub>SS</sub>	<sup>1)</sup> Valeurs limites: Ondulation résiduelle max. 5 V <sub>SS</sub>	<sup>1)</sup> Valores limite: Ondulação residual max. 5 V <sub>SS</sub>	
<sup>2)</sup> A = U <sub>B</sub> connections reverse-polarity protected B = Output Q, short-circuit protected	<sup>2)</sup> A = U <sub>B</sub> Anschlüsse verpolsicher B = Ausgang Q kurzschlussgeschützt	<sup>2)</sup> A = Raccordements U <sub>B</sub> protégés contre les inversions de polarité B = Sortie Q protégée contre les courts-circuits	<sup>2)</sup> A = Conexões U <sub>B</sub> protegidas contra inversão de polos B = Saída Q protegida contra curto-circuitos	

### WS / WE190L

Distanza di lavoro max.	Distancia de conmutación max.	触发感应距离 max.	検出距離 max.	Расстояние срабатывания max.	50 m
Diámetro punto luminoso / distancia	Diámetro / distancia de mancha de luz	光点直径 / 距離	スポット径 / 距離	Диаметр светового пятна / расстояние	40 mm / 10 m
Tensione di alimentazione U <sub>B</sub>	Tensión de alimentación U <sub>B</sub>	电源电压 U <sub>B</sub>	供給電圧 U <sub>B</sub>	Напряжение питания U <sub>B</sub>	10 ... 30 V DC <sup>1)</sup>
Corrente di uscita I <sub>max</sub>	Corriente de salida I <sub>max</sub>	输出电流 I <sub>max</sub>	最大出力電流 I <sub>max</sub>	Выходной ток I <sub>max</sub>	< 100 mA
Tempo di risposta	Tiempo de reacción	触発時間	応答時間	Частота переключения	< 0.5 ms
Sequenza segnali max.	Secuencia de señales max.	信号流 max	最大スイッチング周波数	Время отклика	1000 / s
Tipo di protezione	Tipo de protección	保护种类	保護等級	Класс защиты	IP 67
Classe di protezione	Protección clase	保护级别	保護クラス	Класс защиты	⊕
Commutazioni di protezione	Circuitos de protección	保护电路	保護回路	Схемы защиты	A, B <sup>2)</sup>
Temperatura ambiente circostante	Temperatura ambiente de servicio	工作环境-温度	動作周囲温度	Диапазон рабочих температур	-10 ... +40 °C
<sup>1)</sup> Valori limite: Ondulazione residua max. 5 V <sub>SS</sub>	<sup>1)</sup> Valores límite: Ondulación residual max. 5 V <sub>SS</sub>	<sup>1)</sup> 极限值: 残余纹波最大为 5 V <sub>SS</sub>	<sup>1)</sup> 界限値: リップル 最大 5 V <sub>SS</sub>	<sup>1)</sup> Предельные значения Остаточная вомимость макс. 5 Bss	
<sup>2)</sup> A = U <sub>B</sub> collegamenti con protezione contro inversione di poli B = Uscita Q con protezione anti-cortocircuito	<sup>2)</sup> A = conexiones U <sub>B</sub> con protección contra polarización inversa B = Salida Q protegida contra cortocircuito	<sup>2)</sup> A = U <sub>B</sub> 极性反接保护 B = 具有短路保护的输出端 Q	<sup>2)</sup> A = U <sub>B</sub> 极性反接保護 B = 出力 Q 短絡保護	<sup>2)</sup> A = U <sub>B</sub> -подключения с защитой от перепутывания полюсов B = Выход Q с защитой от короткого замыкания	

