

# ENGLISH

## Photoelectric Proximity Sensor with visible red light Operating Instructions

### Safety Specifications

- > Read the operating 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.
- For use in NFPA 79 applications only. UL-listed adapters providing field wiring leads are available. Enclosure type 1.

### Proper Use

The WTB27-3 RT photoelectric proximity sensor is an opto-electronic sensor and is used for detection of optical, non-contact detection of objects, animals, and people.

### Starting Operation

- The devices WTB27-3 have antivalent switching outputs:  
Only WTB27-3P (PNP, load → M):  
Q: dark-switching, Object is not detected, output HIGH,  
Q̄: light-switching, Object is detected, output HIGH.  
Only WTB27-3N (NPN, load → L+):  
Q: dark-switching, Object is not detected, output LOW,  
Q̄: light-switching, Object is detected, output LOW.  
Connected desired operating mode in accordance with **B**.

- With following connectors only:**  
Connect and secure cable receptacle tension-free.

- Screw on sensor to appropriate bracket (e.g., SICK mounting bracket). Maintain direction in which object moves relative to sensor. Connect photoelectric proximity switch to operating voltage (see type label). Green LED lights.

- Check application conditions such as sensing distance, size and reflectance of object to be detected as well as of background, and compare with characteristic in diagram. (x = sensing distance, y = transition range between set sensing distance and reliable background suppression (z) in % of sensing distance, Ro = reflectance of object, Rh = reflectance of background). Reflectance: 6% = black, 18% = gray, 90% = white (based on standard white to DIN 5033).

- Alignment of sensor to the object: Position object. Position light spot on object.

### Sensing range setting with double-teach key:

**-3P \_\_\_ 3, -3N \_\_\_ 3**  
Press the "+" / "-" keys at the same time (approx. 2 s) until the yellow signal strength indicator blinks. Object is detected. There is no teach-in if the keys are pressed < 0.5 s = manipulation protection. The yellow signal strength indicator lights 1x each time you press the keys. Set sensing range is stored. If the yellow signal strength indicator does not light, readjust the photoelectric proximity switch, clean it and/or check the application conditions and then repeat the teach-in procedure.  
Press "+" button (approx. 0.5 s): sensing distance is increased. Press "-" button (approx. 0.5 s): sensing distance is decreased. There is no correction if the keys are pressed < 0.5 s = manipulation protection. The yellow signal strength indicator lights 1x each time you press the keys. Set sensing range is stored. If the yellow signal strength indicator does not light, readjust the photoelectric proximity switch, clean it and/or check the application conditions and then repeat the teach-in procedure.

### Application-specific notes

Application-specific notes are available under [www.sick.com](http://www.sick.com). Enter the complete device designation or part number in the search box at [www.sick.com](http://www.sick.com). The application-specific notes can be called up on the product information page under "Literature".

### Maintenance

SICK photoelectric sensor do not require any maintenance. We recommend that you clean the external lens surfaces and check the screw connections and plug-in connections at regular intervals.

# DEUTSCH

## Reflexions-Lichttaster mit sichtbarem Rotlicht Betriebsanleitung

### Sicherheitshinweise

- > Vor der Inbetriebnahme die Betriebsanleitung lesen.
- > Anschluss, Montage und Einstellung nur durch Fachpersonal.
- > Gerät bei Inbetriebnahme vor Feuchte und Verunreinigung schützen.
- > Kein Sicherheitsbauteil gemäß EU-Maschinenrichtlinie. Nur zur Verwendung in Anwendungen gemäß NFPA 79. Von UL gelistete Adapter mit Anschlusskabeln sind verfügbar. Enclosure type 1.

### Bestimmungsgemäße Verwendung

Der Reflexions-Lichttaster WTB27-3 RT ist ein optoelektronischer Sensor und wird zum optischen, berührungslosen Erfassen von Sachen, Tieren oder Personen eingesetzt.

### Inbetriebnahme

- Die Geräte WTB27-3 haben antivalente Schaltausgänge:  
Nur WTB27-3P (PNP, Last → M):  
Q: dunkelschaltend, Objekt wird nicht erkannt, Ausgang HIGH,  
Q̄: hellerschaltend, Objekt wird erkannt, Ausgang HIGH.  
Nur WTB27-3N (NPN, Last → L+):  
Q: dunkelschaltend, Objekt wird nicht erkannt, Ausgang LOW,  
Q̄: hellerschaltend, Objekt wird erkannt, Ausgang LOW.  
Gewünschte Betriebsart gemäß B anschließen.

- Nur bei den Steckerversionen:**  
Leitungsdose spannungsfrei aufstecken und festschrauben.

- Sensor an geeignete Halter anschrauben (z.B. SICK-Haltewinkel). Lichttaster an Betriebsspannung legen (s. Typenaufdruck). Grüne LED leuchtet.

- Einsatzbedingungen wie Tastweite, Objektgröße und Remissionsvermögen des Tastgutes sowie des Hintergrundes überprüfen und mit der

# SICK

8014204.Y532 0314 CV

# MultiPac Sensor WTB27-3 RT DC

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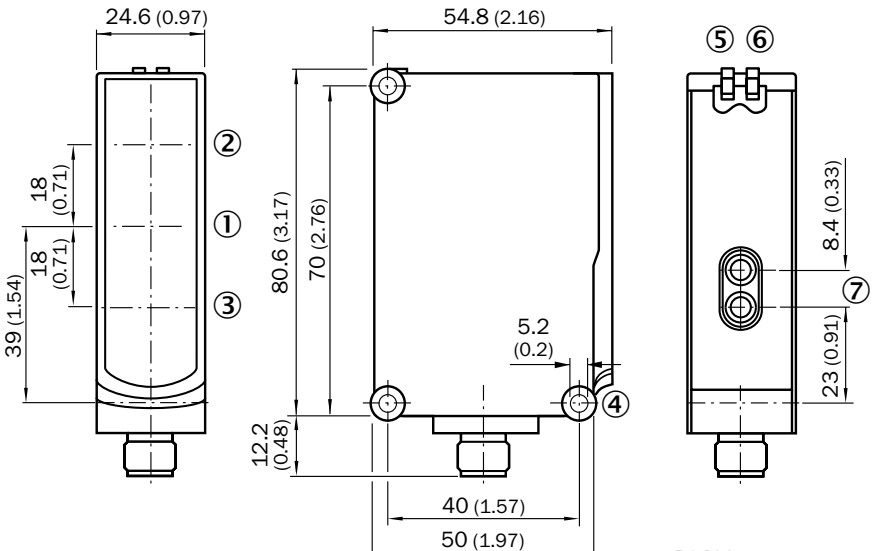
SICK AG, Erwin-Sick-Strasse 1, D-79183 Waldkirch

Please find detailed addresses and additional representatives and agencies in all major industrial nations at [www.sick.com](http://www.sick.com)

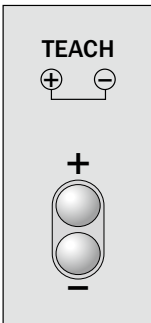
EC Im2

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Alterações poderão ser feitas sem prévio aviso  
Med forbehold for ændringer og fejl  
Contenuti soggetti a modifiche senza preavviso  
Wijzigingen en correcties voorbehouden  
Sujeto a cambio sin previo aviso  
如有更改，不另行通知

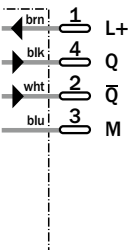
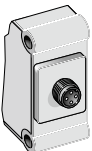
### A WTB27-3



### P2483 N2483



### B P2483 N2483



WTB27-3					P2483 N2483
Sensing distance TW <sup>1)</sup> , max.	Tastweite TW <sup>1)</sup> , max.	Distance de détectioin TW <sup>1)</sup> , max.	Portata di ricezione TW <sup>1)</sup> , max.	Impulslenge TW <sup>1)</sup> , max.	30... 500 mm
Operating distance, adjustable <sup>1)</sup>	Betriebstastweite, einstellbar <sup>1)</sup>	Distance de détection, réglable <sup>1)</sup>	Raio de exploração, ajustável <sup>1)</sup>	tastafstand, regelbaar <sup>1)</sup>	100... 500 mm
Light spot diameter/distance	Lichtfleckdurchmesser/Entfernung	Diamètre de la tache lumineuse/Distance	Diâmetro do ponto de luz/distância	Lysplettdiameter/afstand	~ 12 mm/500 mm
Supply voltage V <sub>s</sub>	Versorgungsspannung U <sub>v</sub>	Tension d'alimentation U <sub>v</sub>	Tensão de força U <sub>v</sub>	Forsyningspænding U <sub>v</sub>	10... 30 V DC <sup>2)</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>	Udgangsstrøm I <sub>max</sub>	100 mA
Switching frequency <sup>3)</sup>	Schaltfolge <sup>3)</sup>	Fréquence <sup>3)</sup>	Sequência min. de sinais <sup>3)</sup>	Signalfølge min. <sup>3)</sup>	100/s
Response time <sup>4)</sup>	Ansprchzeit <sup>4)</sup>	Temps de réponse <sup>4)</sup>	Tempo de reação <sup>4)</sup>	Responstid <sup>4)</sup>	5 ms
Enclosure rating (IEC 60529)	Schutzart (IEC 60529)	Type de protection (IEC 60529)	Tipo de proteção (IEC 60529)	Tæthedegrad (IEC 60529)	IP 66, IP 67
Protection class	Schutzklasse	Classe de protection	Classe de proteção	Beskyttelsesklasse	☐ <sup>5)</sup>
Circuit protection <sup>6)</sup>	Schutzschaltungen <sup>6)</sup>	Circuits de protection <sup>6)</sup>	Circuitos protetores <sup>6)</sup>	Beskyttelseskoblinger <sup>6)</sup>	A, B, C
Ambient operating temperature	Betriebsumgebungstemperatur	Température ambiante	Temperatura ambiente de operação	Driftsomgivelsestemperatur	-30... +60 °C

<sup>1)</sup> Object 90 % reflection according to DIN 5033  
<sup>2)</sup> Limits; Operation in short-circuit<sup>2)</sup> protected network max. 8 A; Residual ripple max. 5 V<sub>pp</sub>  
<sup>3)</sup> With light/dark ratio 1:1  
<sup>4)</sup> Signal transit time with resistive load  
<sup>5)</sup> Reference voltage 50 V DC  
<sup>6)</sup> A = V<sub>s</sub> connections reverse polarity protected  
B = outputs protected against short circuits  
C = interference pulse suppression

<sup>1)</sup> Objekt 90 % Remission nach DIN 5033  
<sup>2)</sup> Grenzwerte; Betrieb im kurzschlussgeschützten Netz max. 8 A; Restwelligkeit max. 5 V<sub>pp</sub>  
<sup>3)</sup> Bei Hell/Dunkelverhältnis 1:1  
<sup>4)</sup> Signallaufzeit bei ohmscher Last  
<sup>5)</sup> Bemessungsspannung 50 V DC  
<sup>6)</sup> A = U<sub>s</sub>-Anschlüsse verpolsicher B = Ausgänge kurzschlussfest C = Störimpulsunterdrückung

<sup>1)</sup> Objet Luminance de 90 % selon DIN 5033  
<sup>2)</sup> Valeurs limites; Service dans un réseau protégé contre les courts-circuits 8 A au maximum; Ondulation résiduelle max. 5 V<sub>pp</sub>  
<sup>3)</sup> Pour un rapport clair/sombre 1:1  
<sup>4)</sup> Durée du signal en charge ohmique  
<sup>5)</sup> Tension de calcul 50 V DC  
<sup>6)</sup> A = Raccordements U<sub>s</sub> protégés contre les inversions de polarité  
B = Sorties protégées contre les courts-circuits  
C = Suppression des impulsions parasites

<sup>1)</sup> Objeto: 90 % de remissão segundo DIN 5033  
<sup>2)</sup> Valores limite; Operação em rede protegida contra curto-circuitos máx. 8 A; Ondulação residual máx. 5 V<sub>pp</sub>  
<sup>3)</sup> Com uma relação luminoso/escuro de 1:1  
<sup>4)</sup> Tempo de transição do sinal com carga ôhmica  
<sup>5)</sup> Tensão de dimensionamento 50 V DC  
<sup>6)</sup> A = Conexões U<sub>s</sub> protegidas contra inversão de polos  
B = Saídas protegidas contra curto circuito  
C = Supressão de impulsos parasitas

<sup>1)</sup> Objekt 90 % remission iht. DIN 5033  
<sup>2)</sup> Grænseværdier; Drift i kortslutningsbeskyttet net max. 8 A; Restende bølgeforhold max. 5 V<sub>pp</sub>  
<sup>3)</sup> Ved lys-/mærkeforhold 1:1  
<sup>4)</sup> Signallaetid ved ohmsk last  
<sup>5)</sup> Dimensioneringspænding 50 V DC  
<sup>6)</sup> A = U<sub>s</sub>-tilslutninger med polbeskyttelse  
B = Udgange kortslutningsresistent  
C = Støjimpulsundertrykkelse

### WTB27-3

WTB27-3					P2483 N2483
Portata di ricezione TW <sup>1)</sup> , max.	Impulslenge TW <sup>1)</sup> , max.	Margen de palpado TW <sup>1)</sup> , máx.	检测距离 TW <sup>1)</sup> 最大值		30... 500 mm
Distanza di ricezione, regolabile <sup>1)</sup>	Tastevæidde <sup>1)</sup>	Margen de palpado en servicio, ajustable <sup>1)</sup>	工作距离, 可调节 <sup>2)</sup>		100... 500 mm
Diametro punto luminoso/distanza	Lichtvekdiameter/Bereik	Diámetro del punto luminoso/distancia	光点直径 / 距离		~ 12 mm/500 mm
Tensione di alimentazione U <sub>v</sub>	Voedingsspanning U <sub>v</sub>	Tensión de alimentación U <sub>v</sub>	电源电压 U <sub>v</sub>		10... 30 V DC <sup>2)</sup>
Corrente di uscita max. I <sub>max</sub>	Uitgangsstroom I <sub>max</sub>	Corriente de salida I <sub>max</sub>	输出电流 I <sub>max</sub>		100 mA
Sequenza segnali min. <sup>3)</sup>	Signalenreeks min. <sup>3)</sup>	Secuencia de conmutación <sup>3)</sup>	开关频率		100/s
Tempo di risposta <sup>4)</sup>	Aansprektijd <sup>4)</sup>	Tiempo de respuesta <sup>4)</sup>	响应时间		5 ms
Tipo di protezione (IEC 60529)	Beveiligingswijze (IEC 60529)	Tipo de protección (IEC 60529)	防护等级 (IEC 60529)		IP 66, IP 67
Classe di protezione	Beveiligingsklasse	Clase de protección	外壳防护等级		☐ <sup>5)</sup>
Commutazioni di protezione <sup>6)</sup>	Beveiligingsschakelingen <sup>6)</sup>	Circuitos de protección <sup>6)</sup>	电路保护		A, B, C
Temperatura ambiente circostante	Bedrijfsomgevingstemperatuur	Temperatura ambiente de servicio	工作环境温度		-30... +60 °C

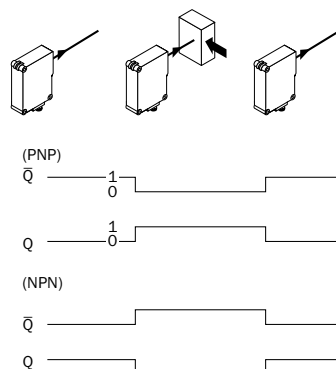
<sup>1)</sup> Oggetto 90 % remissione sec. DIN 5033  
<sup>2)</sup> Valori limite  
<sup>3)</sup> Con relatio chiaro/scuro 1:1  
<sup>4)</sup> Tempo di continuare de segnale a resistenza ohmica  
<sup>5)</sup> Tensione di taratura 50 V DC  
<sup>6)</sup> A = U<sub>s</sub>-collegamenti con protezione contro inversione di poli  
B = uscite a prova di corto circuito  
C = soppressione impulsi

<sup>1)</sup> Objekt 90 % reflectie volgens DIN 5033  
<sup>2)</sup> Grenswaarden  
<sup>3)</sup> Bedrijf in het kortsluiting-beveiligdenet max. 8 A rimpel max. 5 V<sub>pp</sub>  
<sup>4)</sup> Bij licht-/donker-verhouding 1:1  
<sup>5)</sup> Signaalrijdtijd bij ohmse last  
<sup>6)</sup> Meetspanning 50 V DC  
<sup>7)</sup> A = U<sub>s</sub>-aansluitingen beveiligd tegen verkeerd polen  
B = uitgangen beveiligd tegen kortsluiting  
C = storingsimpuls onderdrukking

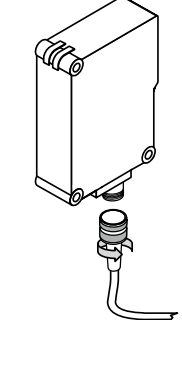
<sup>1)</sup> Objeto con 90 % de remisión según DIN 5033  
<sup>2)</sup> Valores límite; funcionamiento en red protegida contra cortocircuito máx. 8 A; ondulación residual máx. 5 V<sub>pp</sub>  
<sup>3)</sup> Con una relación claro/oscuro de 1:1  
<sup>4)</sup> Duración de la señal con carga ôhmica  
<sup>5)</sup> Tensión de medición 50 V CC  
<sup>6)</sup> A = conexiones U<sub>s</sub> con protección contra polarización inversa  
B = salidas a prueba de cortocircuitos  
C = supresión de impulsos parásitos

<sup>1)</sup> 对表面反射率为90%物体(基于DIN 5033)  
<sup>2)</sup> 限值,在短路保护下电源极性反接,电流最大为8A,纹波电压最大为5V<sub>pp</sub>  
<sup>3)</sup> 亮/暗比1:1  
<sup>4)</sup> 电阻性负载时,传感器检测到变化时输出信号的转换时间  
<sup>5)</sup> 额定电压 DC 50 V  
<sup>6)</sup> A = V<sub>s</sub>极性反接保护  
B = 输出短路保护  
C = 抑制脉冲干扰

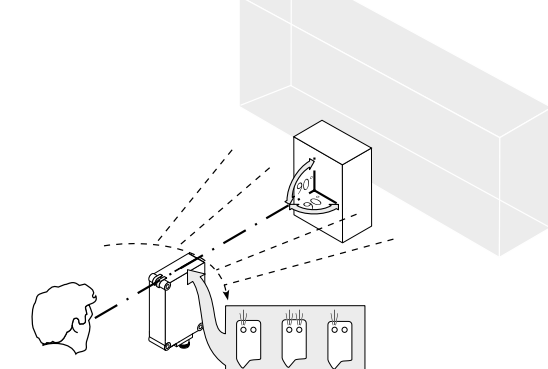
### 1



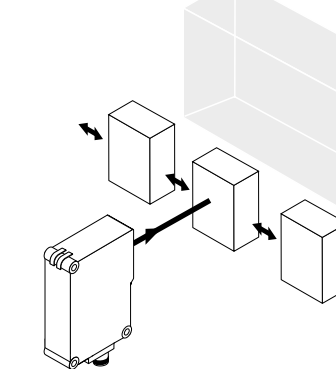
### 2



### 5



### 3



### 4

