Photoelectric sensors
W8, Photoelectric proximity sensor, Background suppression

WTB8-P2231
Photoelectric sensors
W8, Photoelectric proximity sensor, Background suppression

Model Name > WTB8-P2231
Part No. > 6033209

At a glance
• Background suppression
• Standard miniature housing with M3 threaded mounting holes
• Light/dark switching selectable via rotary switch

Your benefits
• Reliable detection of objects regardless of color or surface qualities
• Background suppression provides a high level of precision and repeatability
• Highly visible light spot simplifies alignment
• M3 mounting holes ensure quick installation

Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor/detection principle:</td>
<td>Photoelectric proximity sensor, Background suppression</td>
</tr>
<tr>
<td>Dimensions (W x H x D):</td>
<td>11 mm x 31 mm x 20 mm</td>
</tr>
<tr>
<td>Housing design (light emission):</td>
<td>Rectangular, Slim</td>
</tr>
<tr>
<td>Sensing range max.:</td>
<td>30 mm ... 300 mm 1)</td>
</tr>
<tr>
<td>Sensing range:</td>
<td>40 mm ... 300 mm 2)</td>
</tr>
<tr>
<td>Type of light:</td>
<td>Visible red light</td>
</tr>
<tr>
<td>Light source:</td>
<td>LED 2)</td>
</tr>
<tr>
<td>Wave length:</td>
<td>650 nm</td>
</tr>
<tr>
<td>Alarm output:</td>
<td>-</td>
</tr>
<tr>
<td>Focus adjustable:</td>
<td>-</td>
</tr>
<tr>
<td>Adjustment:</td>
<td>Potentiometer, 4-turn</td>
</tr>
<tr>
<td>Light spot size (distance):</td>
<td>Ø 20 mm (300 mm)</td>
</tr>
</tbody>
</table>

1) Object with 90 % reflectance (referred to standard white DIN 5033)
2) Average service life of 100,000 h at $T_a = +25 \, ^\circ C$

Mechanics/electronics
<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply voltage:</td>
<td>10 V DC ... 30 V DC (^1)</td>
</tr>
<tr>
<td>Ripple:</td>
<td>± 10 % (^2)</td>
</tr>
<tr>
<td>Power consumption:</td>
<td>≤ 30 mA (^3)</td>
</tr>
<tr>
<td>Switching output:</td>
<td>PNP</td>
</tr>
<tr>
<td>Switching output:</td>
<td>Light/dark-switching</td>
</tr>
<tr>
<td>Output characteristic:</td>
<td>Open collector</td>
</tr>
<tr>
<td>Switching mode selector:</td>
<td>Manually selectable</td>
</tr>
<tr>
<td>Signal voltage PNP HIGH/LOW:</td>
<td>Approx. VS - 1.8 V (\sim) 0 V</td>
</tr>
<tr>
<td>Output current (I_{\text{max}}):</td>
<td>≤ 0.5 ms (^4)</td>
</tr>
<tr>
<td>Switching frequency:</td>
<td>1,000 (^5)</td>
</tr>
<tr>
<td>Connection type:</td>
<td>Connector M8, 4-pin</td>
</tr>
<tr>
<td>Circuit protection:</td>
<td>A, B, D (^6) (^7) (^8)</td>
</tr>
<tr>
<td>Weight:</td>
<td>10 g</td>
</tr>
<tr>
<td>Polarisation filter:</td>
<td>-</td>
</tr>
<tr>
<td>Front screen heating:</td>
<td>-</td>
</tr>
<tr>
<td>AS-Interface-Chip:</td>
<td>-</td>
</tr>
<tr>
<td>Housing material:</td>
<td>ABS, Plastic</td>
</tr>
<tr>
<td>Optics material:</td>
<td>PMMA</td>
</tr>
<tr>
<td>Enclosure rating:</td>
<td>IP 67</td>
</tr>
<tr>
<td>Items supplied:</td>
<td>Stainless steel mounting bracket (1.4301/304) BEF-W100-A</td>
</tr>
<tr>
<td>Ambient operating temperature:</td>
<td>-25 °C ... 55 °C</td>
</tr>
<tr>
<td>Ambient storage temperature:</td>
<td>-40 °C ... 70 °C</td>
</tr>
</tbody>
</table>

\(^1\) Limit values, operation in short-circuit protected network max. 8 A
\(^2\) May not exceed or fall short of \(V_S\) tolerances
\(^3\) Without load
\(^4\) Signal transit time with resistive load
\(^5\) With light/dark ratio 1:1
\(^6\) \(A = V_S\) connections reverse-polarity protected
\(^7\) \(B = \) inputs and output reverse-polarity protected
\(^8\) \(D = \) outputs overcurrent and short-circuit protected
Dimensional drawing

1. Standard direction
2. Center of optical axis
3. Connection
4. Orange LED indicator: switching output active
5. LED indicator green: stability indicator
6. Threaded mounting hole M3

Adjustments possible

4. Orange LED indicator: switching output active
5. LED indicator green: stability indicator
7. Sensing range adjustment
8. Light/dark rotary switch L = light switching, D = dark switching
Connection diagram

- brn 1 + (L+)
- whit 2 not connected
- blu 3 - (M)
- blk 4 Q

Characteristic curve

Distance in mm (inch)

Distance in mm (inch)

mm (inch)

0 5 10 15 20 25 30

6%/90% 18%/90% 90%/90%

① ② ③
Connection type

Sensing range diagram

<table>
<thead>
<tr>
<th></th>
<th>Sensing range on black, 6% remission</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Sensing range on gray, 18% remission
Sensing range on white, 90% remission

Distance in mm (inch)
Australia
Phone +61 3 9457 0600
1800 334 802 – tollfree
E-Mail sales@sick.com.au

Belgium/Luxembourg
Phone +32 (0)2 466 55 66
E-Mail info@sick.be

Brasil
Phone +55 11 3215-4900
E-Mail sac@sick.com.br

Canada
Phone +1 (952) 941-6780
1 800-325-7425 – tollfree
E-Mail info@sickusa.com

Ceska Republika
Phone +420 2 57 91 18 50
E-Mail sick@sick.cz

China
Phone +86 4000 121 000
E-Mail info.china@sick.net.cn
Phone +852 2153 6300
E-Mail ghk@sick.com.hk

Danmark
Phone +45 45 82 64 00
E-Mail sick@sick.dk

Deutschland
Phone +49 211 5301-301
E-Mail kundenservice@sick.de

España
Phone +34 93 480 31 00
E-Mail info@sick.es

France
Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Great Britain
Phone +44 (0) 1727 831121
E-Mail info@sick.co.uk

India
Phone +91-22-4033 8333
E-Mail info@sick-india.com

Israel
Phone +972-3-6801000
E-Mail info@sick-sensors.com

Italia
Phone +39 02 27 43 41
E-Mail info@sick.it

Japan
Phone +81 (0)3 3358 1341
E-Mail support@sick.jp

Magyarorszag
Phone +36 1 371 2680
E-Mail office@sick.hu

Nederlands
Phone +31 (0)30 229 25 44
E-Mail info@sick.nl

Norge
Phone +47 67 81 50 00
E-Mail austefjord@sick.no

Österreich
Phone +43 (0)22 36 62 28 80
E-Mail office@sick.at

Polska
Phone +48 22 837 40 50
E-Mail info@sick.pl

România
Phone +40 356 171 120
E-Mail office@sick.ro

Russia
Phone +7 495 775 05 30
E-Mail info@sick.ru

Schweiz
Phone +41 41 619 29 39
E-Mail contact@sick.ch

Singapore
Phone +65 6744 3732
E-Mail admin@sicksgp.com.sg

Slovenija
Phone +386 (0) 1 47 69 990
E-Mail office@sick.si

South Africa
Phone +27 11 472 3733
E-Mail info@sickautomation.co.za

South Korea
Phone +82 2 786 6321/4
E-Mail info@sickkorea.net

Suomi
Phone +358 9 25 15 800
E-Mail sick@sick.fi

Sverige
Phone +46 10 110 10 00
E-Mail info@sick.se

Taiwan
Phone +886 2 2375 6288
E-Mail sales@sick.com.tw

Türkiye
Phone +90 (216) 528 50 00
E-Mail info@sick.com.tr

United Arab Emirates
Phone +971 (0) 4 8865 878
E-Mail info@sick.ae

USA/México
Phone +1(952) 941-6780
1 800-325-7425 – tollfree
E-Mail info@sickusa.com

More representatives and agencies
at www.sick.com