



# WTD20EC-V2449P01

DeltaPac

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

### Ordering information

| Type             | part no. |
|------------------|----------|
| WTD20EC-V2449P01 | 1091212  |

**Included in delivery:** DOL-1204-G10M (1)

Other models and accessories → [www.sick.com/DeltaPac](http://www.sick.com/DeltaPac)

### Detailed technical data

#### Features

|                                        |                                                                                                                                                                                                                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Functional principle</b>            | Photoelectric proximity sensor                                                                                                                                                                                                                                                       |
| <b>Dimensions (W x H x D)</b>          | 42 mm x 42 mm x 45 mm                                                                                                                                                                                                                                                                |
| <b>Housing design (light emission)</b> | Rectangular                                                                                                                                                                                                                                                                          |
| <b>Sensing range max.</b>              | 30 mm ... 40 mm <sup>1)</sup>                                                                                                                                                                                                                                                        |
| <b>Sensing range</b>                   | 30 +/- 2 mm                                                                                                                                                                                                                                                                          |
| <b>Type of light</b>                   | Visible red light                                                                                                                                                                                                                                                                    |
| <b>Light source</b>                    | PinPoint LED <sup>2)</sup>                                                                                                                                                                                                                                                           |
| <b>Light spot size (distance)</b>      | Ø 1 mm (30 mm) <sup>3)</sup>                                                                                                                                                                                                                                                         |
| <b>Wave length</b>                     | 635 nm                                                                                                                                                                                                                                                                               |
| <b>Adjustment</b>                      | IO-Link                                                                                                                                                                                                                                                                              |
| <b>Special applications</b>            | Zero gap detection                                                                                                                                                                                                                                                                   |
| <b>Background suppression</b>          | ≥ 60 mm                                                                                                                                                                                                                                                                              |
| <b>Key feature of the object</b>       | Edges in uneven surfaces                                                                                                                                                                                                                                                             |
| <b>Special features</b>                | The sensor features an optimized internal sensor signal logic, specially designed for secondary packaging with small edges, including folding boxes for cigarette packaging with uneven or glossy surfaces.<br>Increased object speed (1.0 m/s) with reduced mounting tolerance (2°) |

<sup>1)</sup> The sensing range max. refers to the object leading edge. The individual object leading edges must be within the operating range.

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

<sup>3)</sup> 4 x.

#### Mechanics/electronics

|                       |                                   |
|-----------------------|-----------------------------------|
| <b>Supply voltage</b> | 10 V DC ... 30 V DC <sup>1)</sup> |
|-----------------------|-----------------------------------|

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>V</sub> tolerances.

<sup>3)</sup> At 24 V.

<sup>4)</sup> 2 switching outputs with I<sub>max</sub> = 100 mA.

<sup>5)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>6)</sup> B = inputs and output reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

<sup>8)</sup> Preset 1 ms.

|                                                          |                                                       |
|----------------------------------------------------------|-------------------------------------------------------|
| <b>Ripple</b>                                            | < 5 V <sub>pp</sub> <sup>2)</sup>                     |
| <b>Current consumption</b>                               | 70 mA <sup>3)</sup>                                   |
| <b>Switching output</b>                                  | PNP                                                   |
| <b>Output current I<sub>max</sub>.</b>                   | ≤ 100 mA <sup>4)</sup>                                |
| <b>Connection type</b>                                   | Male connector M12, 4-pin                             |
| <b>Circuit protection</b>                                | A <sup>5)</sup><br>B <sup>6)</sup><br>C <sup>7)</sup> |
| <b>Protection class</b>                                  | III                                                   |
| <b>Weight</b>                                            | 130 g                                                 |
| <b>Housing material</b>                                  | Plastic, Novodur                                      |
| <b>Enclosure rating</b>                                  | IP67                                                  |
| <b>Items supplied</b>                                    | Including cable DOL-1204-G10M                         |
| <b>Ambient operating temperature</b>                     | -40 °C ... +55 °C                                     |
| <b>Ambient temperature, storage</b>                      | -40 °C ... +75 °C                                     |
| <b>Productivity max.</b>                                 | ≤ 200,000 pcs./h                                      |
| <b>Object speed max.</b>                                 | ≤ 1 m/s                                               |
| <b>Radius of the object contour</b>                      | 1 mm ... 2 mm                                         |
| <b>Switching accuracy</b>                                | ≤ 2 x radius                                          |
| <b>Repeatability (T<sub>a</sub> not constant)</b>        | typ. < 1 mm                                           |
| <b>Switch on delay Q<sub>1</sub> &amp; Q<sub>2</sub></b> | 0 ms ... 255 ms <sup>8)</sup>                         |
| <b>Time delay off Q<sub>1</sub></b>                      | 0 ms ... 255 ms <sup>8)</sup>                         |
| <b>Object width min.</b>                                 | ≥ 10 mm                                               |
| <b>Object height min.</b>                                | ≥ 30 mm                                               |

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>v</sub> tolerances.

<sup>3)</sup> At 24 V.

<sup>4)</sup> 2 switching outputs with I<sub>max</sub> = 100 mA.

<sup>5)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>6)</sup> B = inputs and output reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

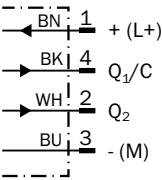
<sup>8)</sup> Preset 1 ms.

## Classifications

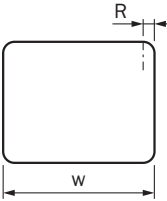
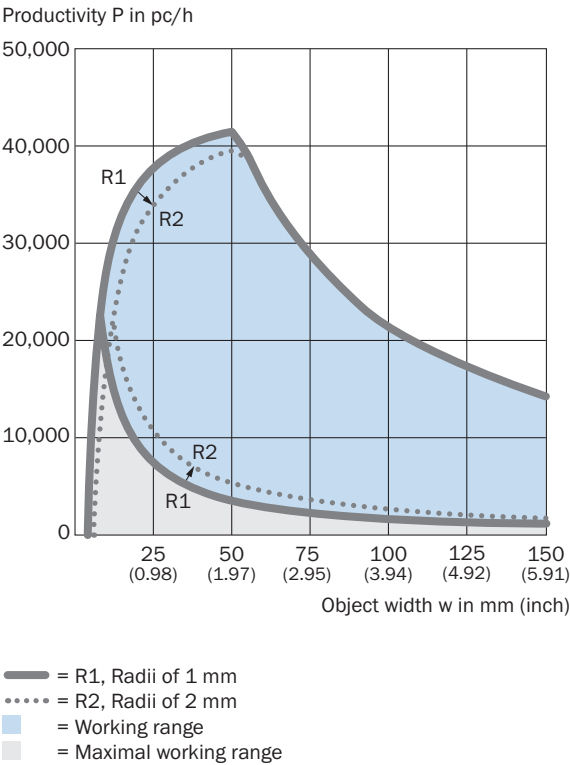
|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270904 |
| <b>ECLASS 5.1.4</b> | 27270904 |
| <b>ECLASS 6.0</b>   | 27270904 |
| <b>ECLASS 6.2</b>   | 27270904 |
| <b>ECLASS 7.0</b>   | 27270904 |
| <b>ECLASS 8.0</b>   | 27270904 |
| <b>ECLASS 8.1</b>   | 27270904 |
| <b>ECLASS 9.0</b>   | 27270904 |
| <b>ECLASS 10.0</b>  | 27270904 |

|                |          |
|----------------|----------|
| ECLASS 11.0    | 27270904 |
| ECLASS 12.0    | 27270903 |
| ETIM 5.0       | EC002719 |
| ETIM 6.0       | EC002719 |
| ETIM 7.0       | EC002719 |
| ETIM 8.0       | EC002719 |
| UNSPSC 16.0901 | 39121528 |

Connection diagram Cd-244



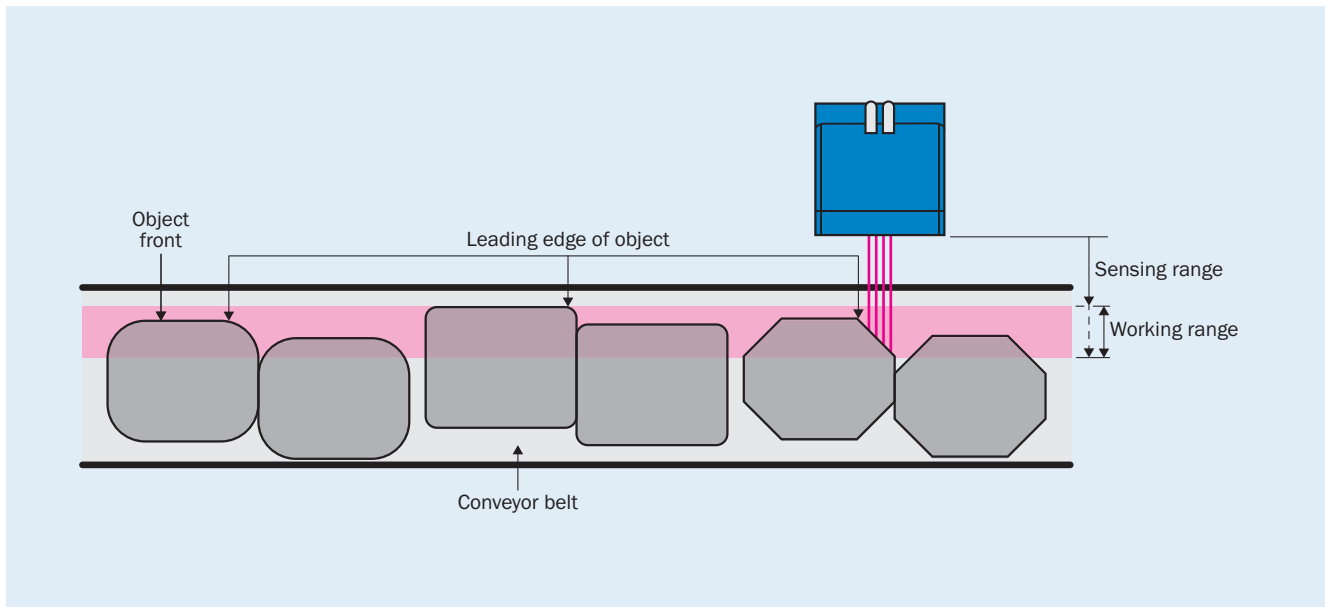
Characteristic curve, productivity



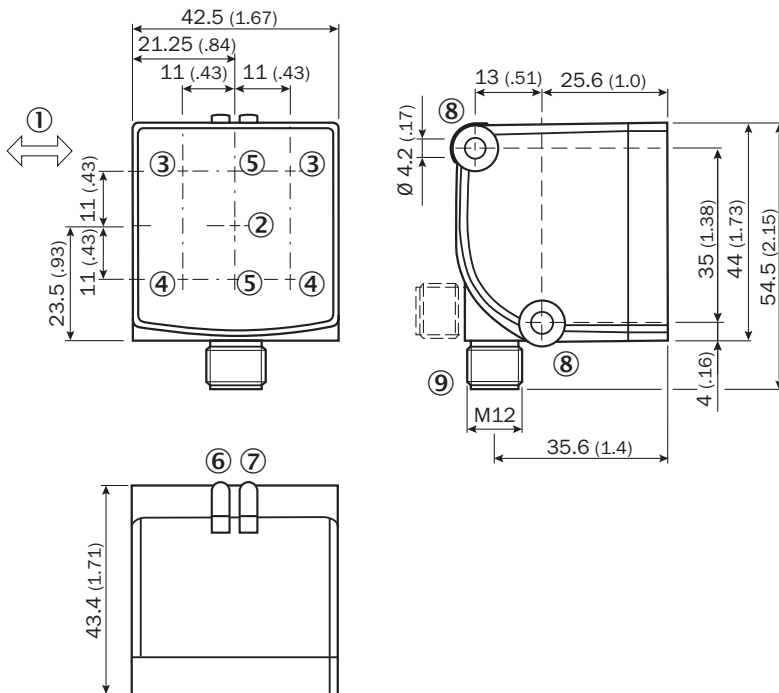
Parameter example, dimensions in mm (inch)

| Object width | Object radii | Productivity min. | Productivity max. |
|--------------|--------------|-------------------|-------------------|
| 25<br>(0.98) | 1<br>(0.04)  | 7,500 pc/h        | 38,000 pc/h       |
| 75<br>(2.95) | 2<br>(0.08)  | 3,500 pc/h        | 28,500 pc/h       |

## Sensing range in detail



## Dimensional drawing WTD20E-V/W24xx, connector



Dimensions in mm (inch)

- ① Standard direction
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver (first energy scale)
- ④ Center of optical axis, receiver (second energy scale)
- ⑤ Optical axis, receiver
- ⑥ LED indicator orange: status of received light beam, presence signal Q1
- ⑦ LED indicator green: Supply voltage active

- ⑧ fixing hole
- ⑨ Connection (rotatable)

### Recommended accessories

Other models and accessories → [www.sick.com/DeltaPac](http://www.sick.com/DeltaPac)

|                                                                                    | Brief description                                                                                                                                                                                                                                                                                                                                                                                                       | Type               | part no. |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| connectors and cables                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |          |
|   | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 5 m, 4-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul> | YF2A14-050VB3XLEAX | 2096235  |
|   | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li><b>Description:</b> Unshielded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> ≤ 0.75 mm²</li> </ul>                                                                                                                                     | STE-1204-G         | 6009932  |
| Mounting systems                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                         |                    |          |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Plate N11N for universal clamp bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)</li> <li><b>Items supplied:</b> Universal clamp (5322627), mounting hardware</li> <li><b>Usable for:</b> DeltaPac, Glare, WTD20E</li> </ul>                                         | BEF-KHS-N11N       | 2071081  |

## 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.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is “Sensor Intelligence.”**

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)