



# WTD20EC-V2499

DeltaPac

MULTITASK PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
WTD20EC-V2499	1073668

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

## Detailed technical data

### Features

<b>Sensor/ detection 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>Type of light</b>	Visible red light
<b>Light source</b>	PinPoint LED <sup>1)</sup>
<b>Wave length</b>	635 nm
<b>Adjustment</b>	IO-Link
<b>Special applications</b>	Zero gap detection
<b>Key feature of the object</b>	Edges, Smoothed edges, rounded out body and prism shaped, shiny and prismatic edges, edges in uneven surfaces
<b>Operating mode</b>	Packaging <sup>2)</sup> Packaging "Oversize Fit" Folded boxes Folded boxes "Slim Fit"
<b>Packaging operating mode</b>	Key feature of the object: rounded edges Background suppression: ≥ 80 mm Object height min.: ≥ 50 mm Object width min.: ≥ 20 mm Radius of the object contour: 2 mm ... 5 mm Sensing range: 30 mm ... 35 mm — Key feature of the object: rounded out body and prism shaped Background suppression: ≥ 80 mm Object height min.: ≥ 50 mm Object width min.: ≥ 30 mm

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

<sup>2)</sup> See "technical information" in the tap "Downloads" "Literature".

	Radius of the object contour: 5 mm ... 20 mm Sensing range: 30 mm ... 40 mm
<b>Packaging "Oversize Fit" operating mode</b>	Key feature of the object: shiny and prismatic edges Background suppression: $\geq 60$ mm Object height min.: $\geq 30$ mm Object width min.: $\geq 30$ mm Radius of the object contour: 5 mm ... 20 mm Sensing range: 30 mm ... 40 mm
<b>Folded Box operating mode</b>	Key feature of the object: edges Background suppression: $\geq 60$ mm Object height min.: $\geq 30$ mm Object width min.: $\geq 10$ mm Radius of the object contour: 1 mm ... 2 mm Sensing range: 30 mm $\pm$ 2 mm
<b>Folded Box "Slim Fit" operating mode</b>	Key feature of the object: edges in uneven surfaces Background suppression: $\geq 60$ mm Object height min.: $\geq 30$ mm Object width min.: $\geq 10$ mm Radius of the object contour: 1 mm ... 2 mm Sensing range: 30 mm $\pm$ 2 mm

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

2) See "technical information" in the tap "Downloads" "Literature".

## Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	$\leq 5 V_{pp}$ <sup>2)</sup>
<b>Current consumption</b>	70 mA <sup>3)</sup>
<b>Switching output</b>	PNP
<b>Output current <math>I_{max}</math>.</b>	$\leq 100$ mA <sup>4)</sup>
<b>Connection type</b>	Male connector M12, 4-pin
<b>Circuit protection</b>	A <sup>5)</sup> B <sup>6)</sup> C <sup>7)</sup>
<b>Protection class</b>	III
<b>Weight</b>	130 g
<b>IO-Link</b>	✓
<b>Transmission rate</b>	COM2
<b>Housing material</b>	Plastic, Novodur
<b>Enclosure rating</b>	IP67
<b>Ambient operating temperature</b>	-40 °C ... +55 °C
<b>Ambient storage temperature</b>	-40 °C ... +75 °C
<b>Productivity max.</b>	200,000 pcs./h

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

2) May not exceed or fall below  $U_V$  tolerances.

3) At 24 V.

4) 2 switching outputs with  $I_{max} = 100$  mA.

5) A =  $V_S$  connections reverse-polarity protected.

6) B = inputs and output reverse-polarity protected.

7) C = interference suppression.

8) Details see in the characteristic curves speed.

<b>Object speed max.</b>	0.6 m/s ... 3 m/s <sup>8)</sup>
<b>Recommended object speed</b>	0.05 m/s ... 0.25 m/s
<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
<b>Time delay off Q<sub>1</sub></b>	0 ms ... 255 ms

<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.

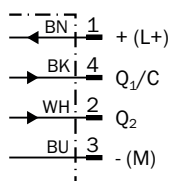
<sup>8)</sup> Details see in the characteristic curves speed.

## Classifications

<b>ECl@ss 5.0</b>	27270904
<b>ECl@ss 5.1.4</b>	27270904
<b>ECl@ss 6.0</b>	27270904
<b>ECl@ss 6.2</b>	27270904
<b>ECl@ss 7.0</b>	27270904
<b>ECl@ss 8.0</b>	27270904
<b>ECl@ss 8.1</b>	27270904
<b>ECl@ss 9.0</b>	27270904
<b>ECl@ss 10.0</b>	27270904
<b>ECl@ss 11.0</b>	27270904
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

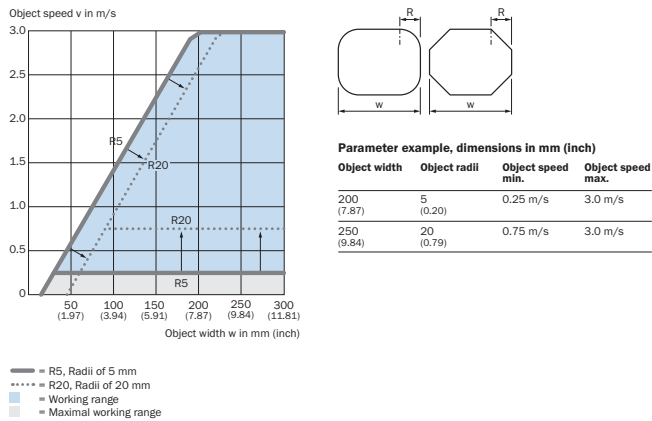
## Connection diagram

Cd-244

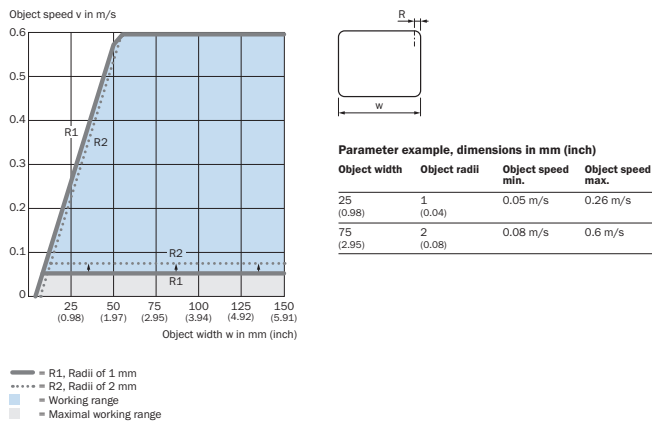


## Characteristic curve

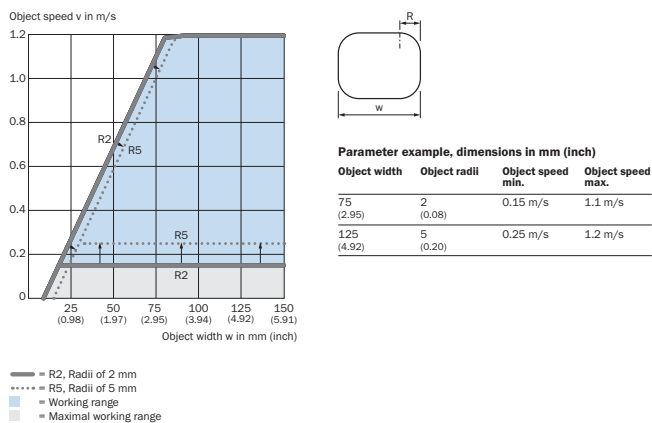
Characteristic curve, rounded out body and prism shaped, rounded edges, speed



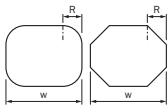
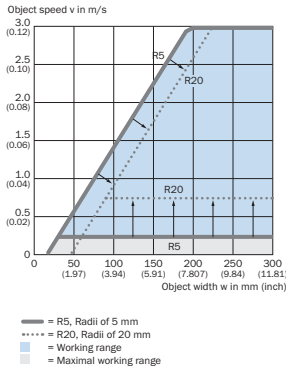
Characteristic curve, edge, rounded edges, speed



Characteristic curve, rounded edges, object speed



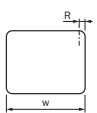
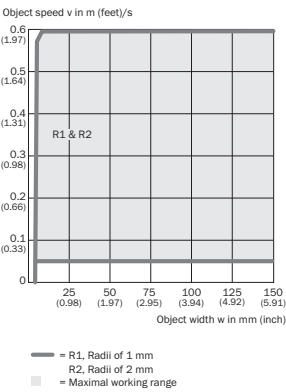
Characteristic curve, shiny and prismatic edges, speed



Object width	Object radii	Productivity min.	Productivity max.
60 (2.36)	5 (0.20)	0.26 m/s (0.85 feet/s)	0.77 m/s (2.53 feet/s)
60 (2.36)	20 (0.79)	0.25 m/s* (0.82 feet/s*)	0.25 m/s* (0.82 feet/s*)

\* Thanks to optimized sensor logic, the sensor can be operated with a switch-on and switch-off delay of 1 ms in the case of the "Slim Fit" Folded Box format for edges on uneven surfaces. The operating range equates to the maximum operating range in this case.  
Note: In applications, shiny embossing must be avoided by installing the sensors as appropriate. Embossing and shiny surfaces themselves do not restrict how the sensor operates.

Characteristic curve, edges in uneven surfaces, speed



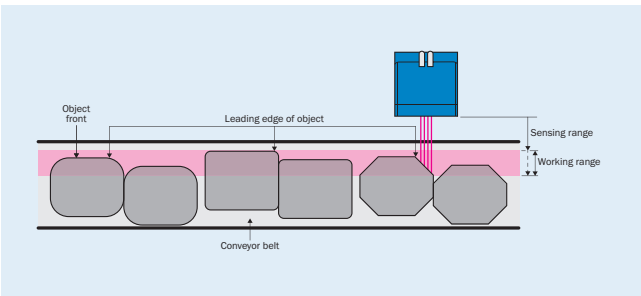
Parameter example, dimensions in mm (inch)

Object width	Object radii	Productivity min.	Productivity max.
10 (0.39)	1 (0.04)	0.05 m/s* (0.16 feet/s*)	0.6 m/s* (1.97 feet/s*)

\* Thanks to optimized sensor logic, it is possible to make use of the maximum operating range in the case of "Oversize Fit" Packaging format for glossy, round, and prism-shaped edges.  
Note: Object speeds must be adhered to with precision. A tolerance of just +/- 0.03 m/s is permitted.

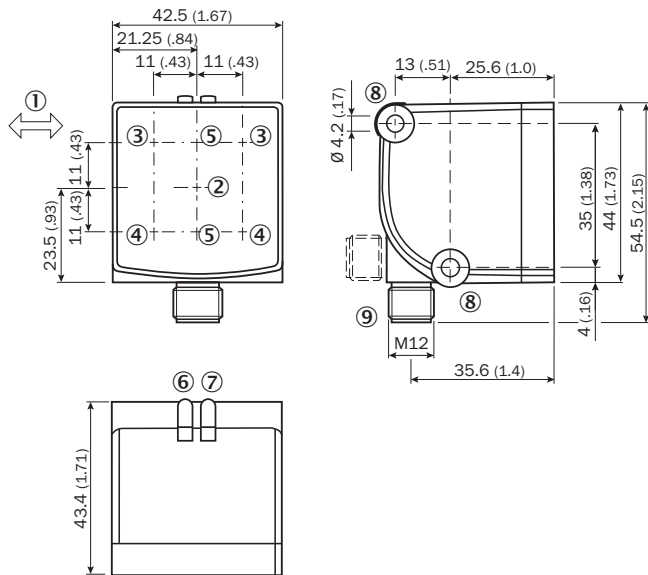
Functional principle

Sensing range in detail



## Dimensional drawing (Dimensions in mm (inch))



WTD20E-V/W24xx, connector



- 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.
Plug connectors and cables			
 	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: male connector, M12, 4-pin, straight Head B: - Cable: unshielded	STE-1204-G	6009932

Recommended services

Additional services → [www.sick.com/DeltaPac](http://www.sick.com/DeltaPac)

	Type	Part no.
Function Block Factory		
<ul style="list-style-type: none"><li><b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&amp;R. More information on the FBF can be found &lt;a href=https://fbf.cloud.sick.com target=_blank&gt; here&lt;/a&gt;.</li></ul>	Function Block Factory	On request



## 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)