

# THE UNIVERSAL APPLICATION SOLVER



507 Kelsey Street • Delano, MN 55328  
 Phone 763-972-1040 Fax 763-972-1041  
 Toll Free 888-920-0929  
 Sensorsincorporated.com



### Product description

The UM30 product family provides a variety of flexible options. Sensing ranges up to 8 m, as well as various setup options, enable these sensors to solve nearly any application. Its high measurement accuracy – due to internal tem-

perature compensation – along with the color-independent detection of objects, immunity to dirt and dust, and a high operational temperature range up to 70 °C, enable reliable operation – even under the most challenging conditions.

### At a glance

- Integrated time-of-flight technology detects objects such as glass, liquids and transparent foils, independent of color
- Range up to 8,000 mm
- Display enables fast and flexible sensor adjustment
- Immune to dust, dirt and fog
- Available with combined analog and digital outputs
- Synchronization and multiplexing
- Adjustable sensitivity
- Three operation modes: Distance to Object (DtO), Window (Wnd) or Object between sensor and background (ObSB)

### Your benefits

- Easy machine integration due to compact size
- Various setup options ensure flexible adaptation to applications
- Multiplex mode eliminates cross-talk interference for consistent and reliable detection and high measurement reliability
- Synchronization mode allows multiple sensors to work as one large sensor, providing a low-cost solution for area detection
- Display enables setup prior to installation, reducing on-site installation time
- Integrated temperature compensation and time-of-flight technology ensure high measurement accuracy
- ObSB-mode enables detection of any object between the sensor and a taught background



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→ [www.mysick.com/en/UM30](http://www.mysick.com/en/UM30)

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



### Detailed technical data

#### Performance

<b>Resolution</b>	≥ 0.18 mm
<b>Repeatability <sup>1)</sup></b>	± 0.15 %
<b>Accuracy <sup>1) 2)</sup></b>	± 1 %
<b>Temperature compensation</b>	✓
<b>Switching frequency</b>	
30 mm ... 250 mm, 350 mm	11 Hz
65 mm ... 350 mm, 600 mm	8 Hz
200 mm ... 1,300 mm, 2,000 mm	6 Hz
350 mm ... 3,400 mm, 5,000 mm	3 Hz
600 mm ... 6,000 mm, 8,000 mm	2 Hz
<b>Ultrasonic frequency (typical)</b>	
30 mm ... 250 mm, 350 mm	320 kHz
65 mm ... 350 mm, 600 mm	400 kHz
200 mm ... 1,300 mm, 2,000 mm	200 kHz
350 mm ... 3,400 mm, 5,000 mm	120 kHz
600 mm ... 6,000 mm, 8,000 mm	80 kHz
<b>Detection area (typical)</b>	See diagrams
<b>Additional function <sup>3)</sup></b>	Set switching mode: Distance to object (DtO) / Window (Wnd) / Object between sensor and background (ObSB) Teach-in and parameterization of switching output, invertible Teach-in and parameterization of analog output, invertible Automatic selection of analog current or voltage output Temperature compensation Synchronization and multiplexing (no cross talk) of up to 10 sensors Set measurement filters: value filter, filter strength, set on delay, adjustable sensitivity, foreground suppression and detection area Switch-off display and lock user interface

<sup>1)</sup> Referring to current measurement value.

<sup>2)</sup> Temperature compensation can be switched off, without temperature compensation: 0.17 % / K.

<sup>3)</sup> Functions may vary depending on sensor type.

#### Interfaces

<b>Resolution analog output</b>	12 bit
<b>Multifunctional input (MF)</b>	1 x MF
<b>Hysteresis</b>	
30 mm ... 250 mm, 350 mm	3 mm
65 mm ... 350 mm, 600 mm	5 mm
200 mm ... 1,300 mm, 2,000 mm	20 mm
350 mm ... 3,400 mm, 5,000 mm	50 mm
600 mm ... 6,000 mm, 8,000 mm	100 mm

#### Mechanics/electronics

<b>Supply voltage V<sub>s</sub> <sup>1) 2)</sup></b>	DC 9 V ... 30 V
<b>Power consumption <sup>3)</sup></b>	≤ 2.4 W
<b>Initialization time</b>	< 300 ms
<b>Design</b>	Cylindrical

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

<sup>2)</sup> 15 V ... 30 V when using analog voltage output.

<sup>3)</sup> Without load.

<b>Housing material</b>	Nickel-plated brass, PBT, display: TPU, ultrasonic transducer: polyurethane foam, glass epoxy resin
<b>Connection type</b>	Male connector, M12, 5-pin
<b>Indication</b>	LED display, 2 x LED
<b>Weight</b>	150 g ... 270 g

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.  
<sup>2)</sup> 15 V ... 30 V when using analog voltage output.  
<sup>3)</sup> Without load.

**Ambient data**

<b>Enclosure rating</b>	IP 67
<b>Protection class</b>	III
<b>Ambient temperature</b>	<b>Operation:</b> -25 °C ... +70 °C <b>Storage:</b> -40 °C ... +85 °C

**Ordering information**

**UM30-2**

- **Sending axls:** straight

Working range, limiting range	Response time	Output time	Switching output <sup>1)</sup>	Analog output	Type	Part no.
30 mm ... 250 mm, 350 mm	50 ms	8 ms	1 x PNP (200 mA) <sup>2)</sup>	-	UM30-211111	6037660
			1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-211118	6036921	
			1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ ) <sup>3) 4) 5)</sup>			
			2 x PNP (200 mA) <sup>2)</sup>		UM30-211112	6037664
			1 x NPN (200 mA) <sup>6)</sup>		UM30-211115	6037669
			2 x NPN (200 mA) <sup>6)</sup>		UM30-211114	6037674
65 mm ... 350 mm, 600 mm	70 ms	16 ms	1 x PNP (200 mA) <sup>2)</sup>	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-212111	6037661
			1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ ) <sup>3) 4) 5)</sup>			
			2 x PNP (200 mA) <sup>2)</sup>		UM30-212112	6037665
			1 x NPN (200 mA) <sup>6)</sup>		UM30-212115	6037670
			2 x NPN (200 mA) <sup>6)</sup>		UM30-212114	6037675
			-	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-212113	6036917
200 mm ... 1,300 mm, 2,000 mm	110 ms	23 ms	1 x PNP (200 mA) <sup>2)</sup>	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-213111	6037537
			1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ ) <sup>3) 4) 5)</sup>			
			2 x PNP (200 mA) <sup>2)</sup>		UM30-213112	6037666
			1 x NPN (200 mA) <sup>6)</sup>		UM30-213115	6037671
			2 x NPN (200 mA) <sup>6)</sup>		UM30-213114	6037676
			-	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-213113	6036918
			1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ ) <sup>3) 4) 5)</sup>			

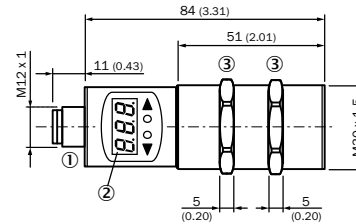
<sup>1)</sup> Output Q short-circuit protected.  
<sup>2)</sup> PNP: HIGH =  $V_S - (< 2 \text{ V})$  / LOW = 0 V.  
<sup>3)</sup> Automatic selection of analog current or voltage output dependent on load.  
<sup>4)</sup> For 4 mA ... 20 mA and  $V_S \leq 20 \text{ V}$  max load  $\leq 100 \Omega$ .  
<sup>5)</sup> Subsequent smoothing of the analog output, depending on the application, may increase the response time by up to 200 %.  
<sup>6)</sup> NPN: HIGH  $\leq 2 \text{ V}$  / LOW =  $V_S$ .

Working range, limiting range	Response time	Output time	Switching output <sup>1)</sup>	Analog output	Type	Part no.
350 mm ... 3,400 mm, 5,000 mm	180 ms	43 ms	1 x PNP (200 mA) <sup>2)</sup>	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-214111	6037662
			1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ ) <sup>3) 4) 5)</sup>			
			2 x PNP (200 mA) <sup>2)</sup>		UM30-214112	6037667
			1 x NPN (200 mA) <sup>6)</sup>		UM30-214115	6037672
			2 x NPN (200 mA) <sup>6)</sup>		UM30-214114	6037677
			-	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-214113	6036919
600 mm ... 6,000 mm, 8,000 mm	240 ms	60 ms	1 x PNP (200 mA) <sup>2)</sup>	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-215111	6037663
			1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ ) <sup>3) 4) 5)</sup>			
			2 x PNP (200 mA) <sup>2)</sup>		UM30-215112	6037668
			1 x NPN (200 mA) <sup>6)</sup>		UM30-215115	6037673
			2 x NPN (200 mA) <sup>6)</sup>		UM30-215114	6037678
			-	1 x 0 V ... 10 V ( $\geq 100 \text{ k}\Omega$ ) <sup>3)</sup>	UM30-215113	6036920
			1 x 4 mA ... 20 mA ( $\leq 500 \Omega$ ) <sup>3) 4) 5)</sup>			

<sup>1)</sup> Output Q short-circuit protected.  
<sup>2)</sup> PNP: HIGH =  $V_S - (< 2 \text{ V})$  / LOW = 0 V.  
<sup>3)</sup> Automatic selection of analog current or voltage output dependent on load.  
<sup>4)</sup> For 4 mA ... 20 mA and  $V_S \leq 20 \text{ V}$  max load  $\leq 100 \Omega$ .  
<sup>5)</sup> Subsequent smoothing of the analog output, depending on the application, may increase the response time by up to 200 %.  
<sup>6)</sup> NPN: HIGH  $\leq 2 \text{ V}$  / LOW =  $V_S$ .

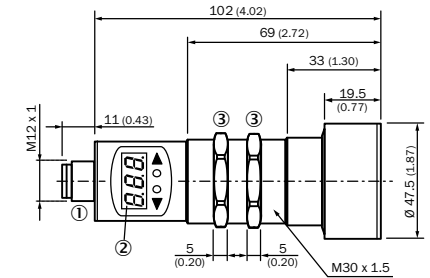
**Dimensional drawings (Dimensions in mm (inch))**

UM30-211, UM30-212, UM30-213



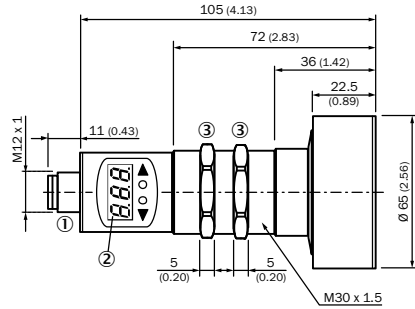
- ① Connection
- ② Display
- ③ Mounting nuts, SW 36 mm

UM30-214



- ① Connection
- ② Display
- ③ Mounting nuts, SW 36 mm

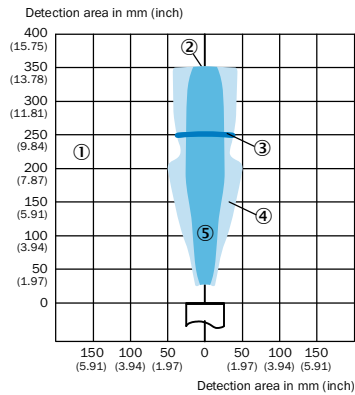
UM30-215



- ① Connection
- ② Display
- ③ Mounting nuts, SW 36 mm

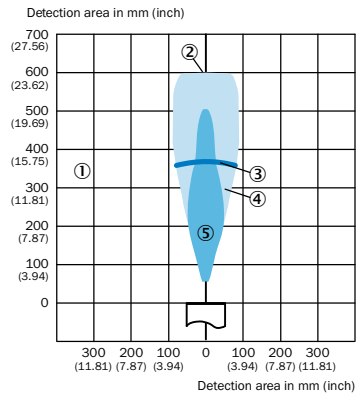
Detection ranges

UM30-211



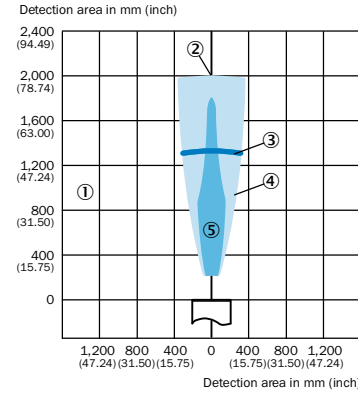
- ① Sensing range dependent on reflection properties, size and orientation of the object
- ② Limiting range
- ③ Working range
- ④ Example object: aligned plate 500 mm x 500 mm
- ⑤ Example object: pipe with 10 mm diameter

UM30-212



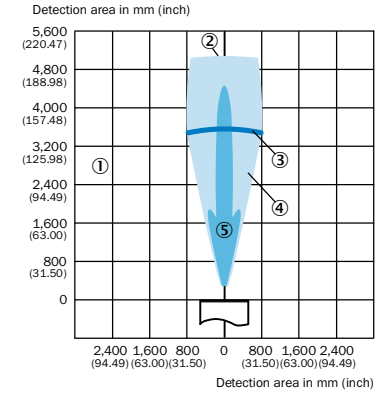
- ① Sensing range dependent on reflection properties, size and orientation of the object
- ② Limiting range
- ③ Working range
- ④ Example object: aligned plate 500 mm x 500 mm
- ⑤ Example object: pipe with 27 mm diameter

UM30-213



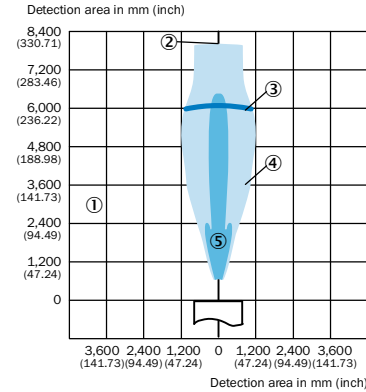
- ① Sensing range dependent on reflection properties, size and orientation of the object
- ② Limiting range
- ③ Working range
- ④ Example object: aligned plate 500 mm x 500 mm
- ⑤ Example object: pipe with 27 mm diameter

UM30-214



- ① Sensing range dependent on reflection properties, size and orientation of the object
- ② Limiting range
- ③ Working range
- ④ Example object: aligned plate 500 mm x 500 mm
- ⑤ Example object: pipe with 27 mm diameter

UM30-215



- ① Sensing range dependent on reflection properties, size and orientation of the object
- ② Limiting range
- ③ Working range
- ④ Example object: aligned plate 500 mm x 500 mm
- ⑤ Example object: pipe with 27 mm diameter


Recommended accessories

Mounting systems

Mounting brackets and mounting plates



	Brief description	Part no.
	Mounting plate for M30 sensors	5321871
	Mounting bracket, M30 thread	5308445

Terminal and alignment brackets

	Brief description	Part no.
	Mounting bracket, M30, axial rotation possible, with threaded mounting hole M6	5311527


Connection systems

Plug connectors and cables

	Connection type head A	Connection type head B	Cable	Cable length	Part no.
 Illustration may differ	Female connector, M12, 5-pin, straight	Cable	PVC, unshielded	2 m	600889C
 Illustration may differ	Female connector, M12, 5-pin, angled	Cable	PVC, unshielded	2 m	600890C

Further accessories

Programming and configuration tools

	Brief description	Type	Part no.
	Tool for visualization, configuration and cloning, 3-digit LED display, supply voltage: DV 9 V ... 30 V	Connect+ adapter (CPA)	6037782