Leuze electronic

the sensor people

SMART
SENSOR
BUSINESS

ULTRASONIC SENSORS

Extensive product range of measuring and switching sensors

www.leuze.com

ПРОМЭЛЕКТРОНИКА / sales@prom-elec.com

THE SOLUTION FOR DIFFICULT APPLICATIONS

These sensors are activated on sound reflecting materials largely independent of the surface.

THE ALL-ROUNDERS AMONG THE SENSORS

Ultrasonic sensors are used whenever optical systems reach their limits. Hence, partially and fully transparent or extremely dark objects can be detected via ultrasonics just as easily as objects with reflecting surfaces. Even very dusty, hazy or humid environments are no challenge for these sensors.

In its product range, Leuze electronic offers all three function principles – diffuse sensors, retro-reflective sensors and throughbeam sensors. The most commonly used sensors are selected if, e.g., only window operation is possible due to the machine design, i.e., the sensor can only detect on the object. With a retro-reflective sensor, a permanently installed object, e.g., the rear wall, is detected by the sensor. If an object interrupts the space between sensor and reflector, this is detected by the sensor. Throughbeam sensors consist of transmitting and receiving element. They are characterized by especially fast and insensitive detection of even difficult objects.

ULTRASONICS OFFERS DISTANCE, HEIGHT OR DIMENSION MEASUREMENTS IN DIFFERENT AREAS OF APPLICATION

In our extensive product range, you will find high-performance sensor solutions for the detection of objects with sound-reflecting surfaces for applications above all in the packaging and graphics industries.

Packaging systems

- Reliable detection of transparent objects such as e.g. PET bottles or films
- Level measurement and level monitoring of liquids or bulk materials
- Detection of high glossy or structured objects and surfaces

Graphics industry

- Detection of high glossy printing media
- Stack height measurement
- Determination of roll diameter

*power*reserve.

- Excellent background suppression due to time-of-flight measurement (ToF)
- Precise distance-measuring sensors through temperature compensation
- Different operating principles for switching sensors

*easy*handling.

- Systems with especially narrow sound cone for the detection of small objects or of objects with extremely small openings
- Systems with teach-in function on the device and / or by cable
- Devices with process data and configuration via IO-Link interface available

MEASURING ULTRASONIC SENSORS

Retro-reflective ultrasonic sensors
DMU 318

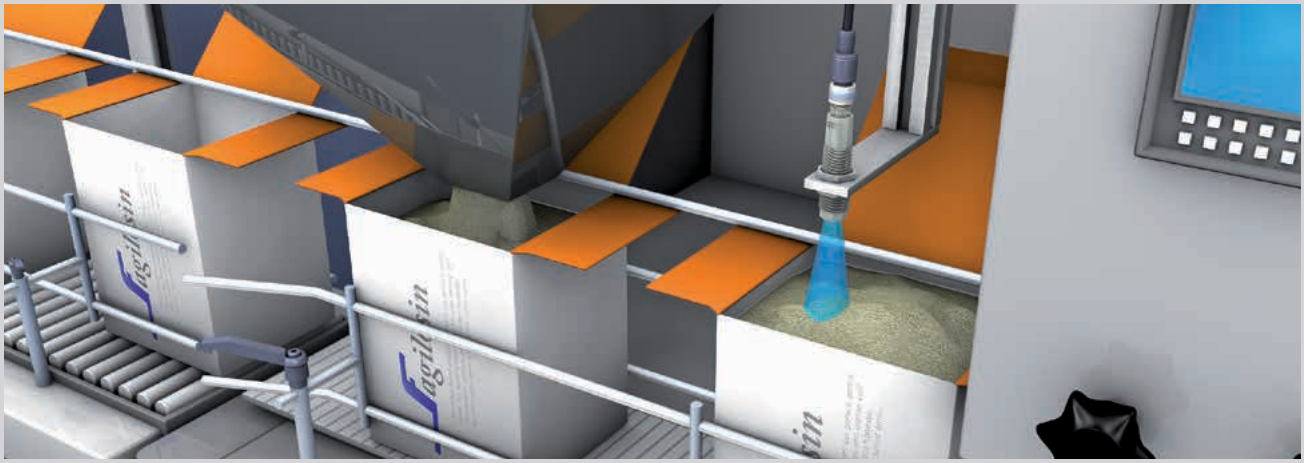
Overall dimension	M18 x 1 mm			
Measurement ranges	40 – 300 mm	50 – 400 mm	80 – 1,200 mm	150 – 1,600 mm
response times	62 ms	500 ms	100 ms	250 ms
Resolution	2 mm			
Reproducibility	± 0.5 % mm			
Temperature compensation	Yes			

- Robust plastic design with degree of protection IP 67
- Devices available with current or voltage output
- Model with M18 angled head, sound exit 90°
- Short or standard construction
- 1 or 2 independent switching outputs
- To avoid mutual interference, max. 6 sensors may be synchronized via one cable
- 3 operating modes: measuring, synchronous and multiplex operation

Retro-reflective ultrasonic sensors
DMU 330

Overall dimension	M30 x 1.5 mm	
Measurement ranges	250 – 3,500 mm	350 – 6,000 mm
response times	250 ms	500 ms
Resolution	5 mm	6 mm
Reproducibility	± 17 % mm	± 30 % mm
Temperature compensation	Yes	

- Robust plastic design with degree of protection IP 67
- Devices available with current or voltage output
- 1 or 2 independent switching outputs, teachable via a cable or teach button
- To avoid mutual interference, any number of sensors may be synchronized via one cable
- 3 operating modes: measuring, synchronous and multiplex operation



IO-Link

Retro-reflective ultrasonic sensors
DMU 418B

Overall dimension	M18 x 1 mm	
Measurement ranges	25 – 400 mm	150 – 1,300
response times	71 ms	62 ms
Resolution	1 mm	
Reproducibility	± 15% of end value	± 15% of end value
Temperature compensation	Yes	

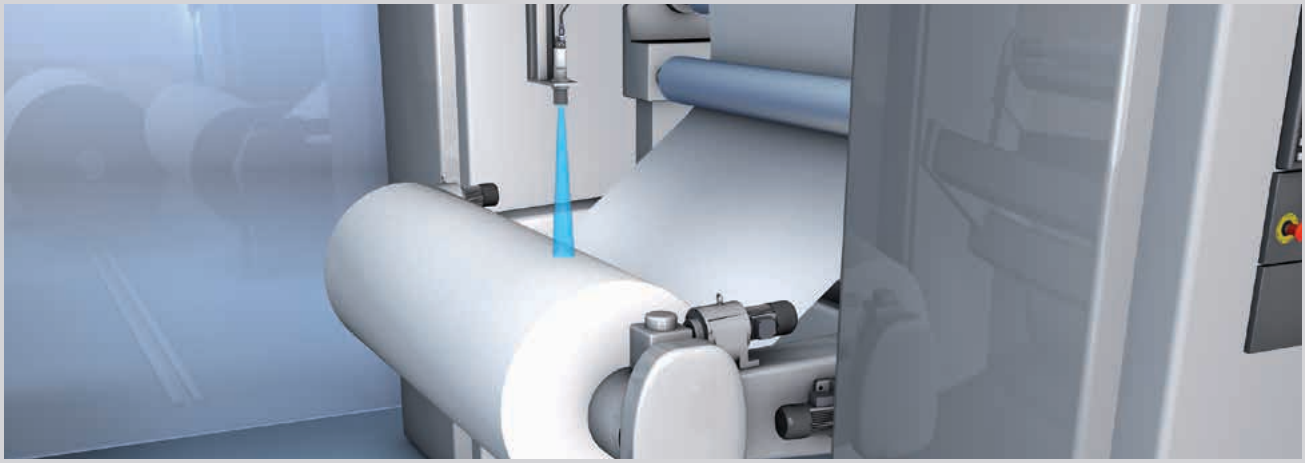
- Robust all-metal design with degree of protection IP 67 and IP 68
- One current or voltage output configurable via IO-Link / PC software
- To avoid mutual interference, max. 10 sensors may be synchronized via one cable

IO-Link

Retro-reflective ultrasonic sensors
DMU 430B

Overall dimension	M30 x 1.5			
Measurement ranges	60 – 300 mm	200 – 1,300 mm	300 – 3,000 mm	600 – 6,000 mm
response times	80 ms	110 ms	125 ms	400 ms
Resolution	1 mm			
Reproducibility	±0.45 mm	±2 mm	±5 mm	±9 mm
Temperature compensation	Yes			
IO-Link	Yes			No

- One current or voltage output for each sensor configurable via IO-Link / PC software
- To avoid mutual interference, max. 10 sensors may be synchronized via one cable
- 5 operating modes: scanning, synchronous, multiplex, activation and throughbeam operation



SWITCHING ULTRASONIC SENSORS

Throughbeam ultrasonic sensor
LSU 18

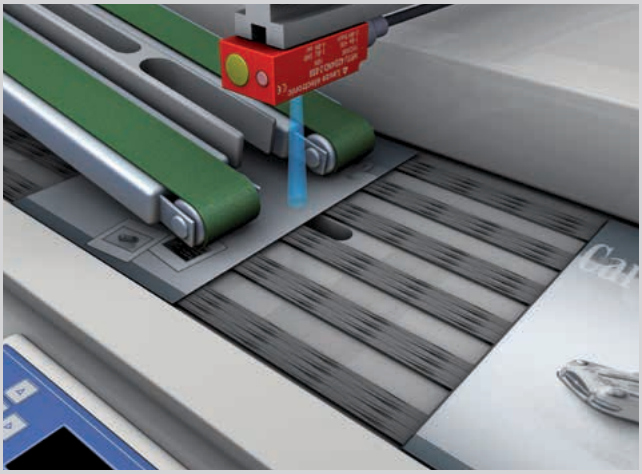
Overall dimension	15 x 50 x 33 mm (W x H x D)
Operating ranges	0 – 650 mm
Response time	5 ms
Resolution	–
Reproducibility	–

- High switching frequency 100 Hz
- High sound pressure, therefore suitable for air transport systems
- Detection of narrow gaps
- Insensitive to dust

Retro-reflective ultrasonic sensors
HRTU 420

Overall dimension	40 x 42 x 15 mm (W x H x D)		
Scanning ranges	Narrow sound cone: 10 – 200 mm	Narrow sound cone: 40 – 400 mm	Narrow sound cone: 100 – 1,000 mm
response times	Narrow sound cone: 10 ms	Standard sound cone: 50 ms	Wide sound cone: 50 ms
Resolution	1 mm		
Reproducibility	≤ ± 0.5 % mm		

- 3 different opening angles and sound cones: narrow, standard, wide
- Teach-in on the device and via a cable
- Protection against false operation by automatically locking teach button
- Versions also available as retro-reflective ultrasonic sensor



Retro-reflective ultrasonic sensors
HTU 318

Overall dimension	M18 x 1 mm			
Scanning ranges	40 – 300 mm	50 – 400 mm	80 – 1,200 mm	150 – 1,600 mm
response times	62 ms	500 ms	100 ms	250 ms
Resolution	2 mm			
Reproducibility	≤ ± 0.5 % mm			
Temperature compensation	Yes			

- Robust plastic design with degree of protection IP 67
- Model with M18 angled head, sound exit 90°
- Short or standard construction
- 1 or 2 independent switching outputs
- To avoid mutual interference, max. 6 sensors may be synchronized via one cable
- 3 operating modes: scanning, synchronous and multiplex operation

Retro-reflective ultrasonic sensors
HTU 330

Overall dimension	M30 x 1mm	
Scanning ranges	250 – 3,500 mm	350 – 6,000 mm
response times	250 ms	500 ms
Resolution	4 mm	6 mm
Reproducibility	± 0.5 % mm	
Temperature compensation	Yes	

- Robust plastic design with degree of protection IP 67
- Two independent switching outputs, teachable via control button on the device
- To avoid mutual interference, any number of sensors may be synchronized via one cable
- 3 operating modes: scanning, synchronous and multiplex operation

SWITCHING ULTRASONIC SENSORS

Retro-reflective ultrasonic sensors
HRTU 412

Overall dimension	M12 x 1	
Scanning ranges	Narrow sound cone: 10 – 200 mm	Standard sound cone: 40 – 400 mm
response times	Narrow sound cone: 10 ms	Narrow sound cone: 25 ms
Resolution	1 mm	
Reproducibility	≤ ± 0.5 mm	

- 2 different opening angles and sound cones: narrow, standard
- Teach-in via cable
- Protection against false operation by automatically locking teach button

Retro-reflective ultrasonic sensors
HTU 418B / VRTU 430

Overall dimension	M18 x 1 mm				M30 x 1.5 mm
Measurement ranges	25 – 400 mm	150 – 1,300 mm	25 – 400 mm	150 – 1,000 mm	600 – 6,000 mm
response times	71 ms	62 ms	71 ms	62 ms	400 ms
Resolution	1 mm				
Reproducibility	± 15 % of end value				
Temperature compensation			No		

- Robust all-metal design
- Model with M18 angled head (sound exit 90° to the longitudinal axis of the sensor)
- Short or standard construction
- 1 or 2 independent switching outputs, teachable via a cable

Retro-reflective ultrasonic sensor
RKU 318 short

Overall dimension	M18 x 1 mm	
Scanning ranges	70 – 300 mm	150 – 800 mm
response times	62 ms	100 ms
Resolution	2 mm	
Reproducibility	± 0.5 % mm	
Temperature compensation	Yes	

- Robust plastic design with degree of protection IP 67
- Teach-in via cable
- Short construction

Retro-reflective ultrasonic sensor
RKU 318 long

Overall dimension	M18 x 1 mm	
Scanning ranges	100 – 400 mm	250 – 1,600 mm
response times	62 ms	500 ms
Resolution	2 mm	
Reproducibility	± 0.5 % mm	
Temperature compensation	Yes	

- Robust plastic design with degree of protection IP 67
- Teach-in via control button on the device
- Standard construction
- 3 operating modes: scanning, synchronous and multiplex operation

TOP FEATURES AT A GLANCE

Our extensive product line of ultrasonic sensors offers maximum flexibility for your applications.

Operating principle	Sound exit	Housing material	Operating range	M12 housing	M18 housing	M30 housing	Cubic housing	M8 connector	M12 connector	Cable, 2 m, PVC	1x switching output	2x switching output	PNP design	NPN design	Push-pull design	1x voltage output	1x current output	IO-Link	Synchronization	Line teach	Teach button	Temp. compensation
Switching	Straight	Plastic	10…200				X	X			X		X	X						X	X	
			40…300		X				X		X		X	X						X		X
			40…400				X	X			X		X	X						X	X	
			50…400		X				X			X	X	X					X		X	X
			100…1,000				X	X			X		X	X						X	X	
			80…1.200		X				X		X		X	X						X		X
			150…1,600		X				X			X	X	X					X		X	X
			250…3,500			X			X			X	X	X					X		X	X
			350…6,000			X			X			X	X						X		X	X
		Metal	10…200	X					X		X		X	X						X		
			25…400		X				X		X	X	X		X			X	X	X	X	X
			40…400	X					X		X		X	X						X		
			100…700		X				X		X		X							X		
			150…1,000		X				X		X		X							X		
			150…1,300		X				X			X	X					X	X	X	X	X
			300…3,000			X			X			X	X		X			X	X	X	X	X
			600…6,000			X			X			X	X						X	X	X	
	Angled 90°	Metal sleeve	25…400		X				X		X	X	X							X		
			150…1,000		X				X		X		X							X		
			150…1,300		X				X			X	X							X		
Switching Retro	Straight	Plastic	0…300		X				X		X		X	X						X		X
			0…400		X		X	X	X		X		X	X						X	X	X
			0…800		X				X		X		X	X						X		X
			0…1,600		X				X		X		X	X							X	X
Measuring	Angled 90°	Plastic sleeve	50…400		X				X		X	X	X	X		X	X		X		X	X
			150…1,600		X				X		X	X	X	X		X	X		X		X	X
	Straight	Plastic	40…300		X				X							X	X			X		X
			50…400		X				X		X		X	X		X	X		X		X	X
			80…1.200		X				X							X	X			X		X
			150…1,600		X				X		X		X	X		X	X		X		X	X
			250…3,500			X			X		X		X	X		X	X		X		X	X
			350…6,000			X			X		X		X				X		X		X	X
		Metal	25…400		X				X		X		X			X	X	X	X	X	X	X
			150…1,300		X				X		X		X			X	X	X	X	X	X	X
			300…3,000			X			X		X		X			X	X	X	X	X	X	X
			600…6,000			X			X		X		X				X		X	X	X	

OUR PROMISE TO YOU

SMARTER **PRODUCT USABILITY**

With regard to our product developments, we systematically place emphasis on the especially good usability of all devices. To this end, simple mounting and alignment are taken into account – just as the uncomplicated integrability of the sensors in existing field bus systems and easy configuration, e.g. via a web browser, are.

SMARTER **APPLICATION KNOW-HOW**

Whoever can do it all, can do nothing right. Which is why we concentrate on selected target sectors and applications. There, we are specialists and know all aspects inside out. For this purpose, we optimize our solutions and offer a comprehensive product range that makes it possible for our customers to obtain the absolute best solutions from a single source.

SMARTER **CUSTOMER SERVICE**

The technical and personal proximity to our customers, and a skilled, straightforward handling of queries and problems, are among our strengths – and will remain so. Consequently, we will continue to expand our service offerings and, indeed, also forge ahead in new directions to persistently redefine the utmost in customer service. Whether on the phone, on the Internet or on-site with our customers – regardless of when and where the expertise of the sensor people is needed at any time.

Info at: **www.leuze.com**

Martina Weil,
Employee in the
Customer Care Center

Switching Sensors
Optical Sensors
Ultrasonic Sensors
Fiber Optic Sensors
Inductive Switches
Forked Sensors
Light Curtains
Special Sensors

Measuring Sensors
Distance Sensors
Sensors for Positioning
3D Sensors
Light Curtains
Forked Sensors

Products for Safety at Work
Optoelectronic Safety Sensors
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Safe Control Components
Machine Safety Services

Identification
Bar Code Identification
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RF Identification

Data Transmission / Control Components
MA Modular Connection Units
Data Transmission
Safe Control Components
Signaling Devices
Connection Technology and Passive Distribution Boxes

Industrial Image Processing
Light Section Sensors
Smart Camera

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