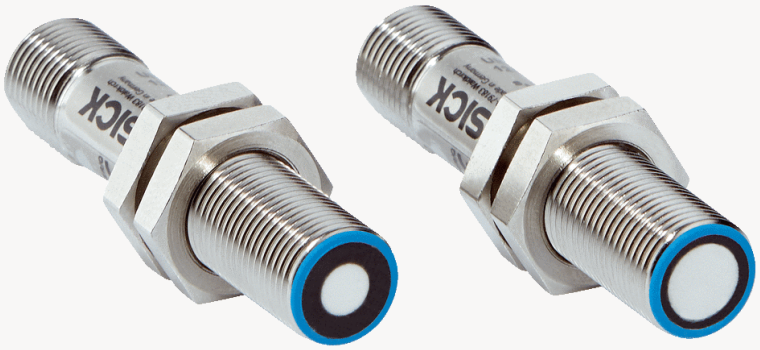
SICK.COM



PRODUCT OVERVIEW

UM12

Ultrasonic distance sensors

SICK Sensor Intelligence

ULTRASONIC DISTANCE SENSORS

UM12

Ultrasonic sensors for tight installation situations in metric housings up to 350 mm

The sensors in the UM12 product family impress with compact dimensions in a rugged metal housing. Different output signals including IO-Link interface provide for maximum flexibility in tight installation space. Color-independent detection, high contamination tolerance, and outstanding background suppression deliver stable measurement results even under challenging conditions. With the UM12 ultrasonic sensor, SICK is now able to offer the proven technology for any application, in an M12 housing.

UM12 AT A GLANCE

BENEFITS

- Very compact housing dimensions for straightforward machine integration
- Proven M12 housing design ensures compatibility with other technologies
- Rugged, one-piece metal housing ensures highest plant availability
- Teach-in via cable and IO-Link prevents unintentional sensor adjustment, therefore reducing machine downtime
- Integrated temperature compensation ensures high measurement accuracy at all times for optimum process quality
- The sensor's immunity to external factors enables it to take reliable measurements even in dirty, dusty, humid, and foggy conditions

FEATURES

- Very short and rugged M12 metal housing
- Wide variety of interfaces and IO-Link
- Optimal background suppression
- Integrated temperature compensation
- Detection, measurement, or positioning with ultrasound
- Regardless of material color, transparency, gloss, or ambient light

TECHNICAL DATA OVERVIEW

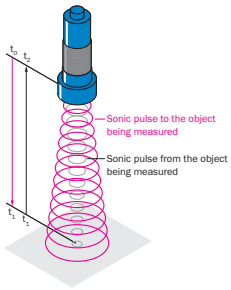
Measuring range	240 mm ... 20 mm
Repeatability	± 0.15 %
Resolution	≤ 0.069 mm
Response time	24 ms ... 30 ms
Output time	8 ms ... 10 ms
Switching frequency	25 Hz 30 Hz
Digital Output	Push-pull: PNP/NPN PNP/NPN
Enclosure rating	IP65 IP67
Sending axis	Straight
Ambient temperature, operation	–25 °C ... +70 °C

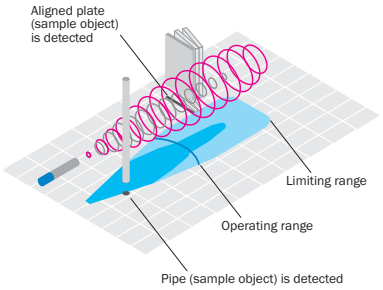
ADVANTAGES

Virtually unlimited use – regardless of color, gloss, and transparency

SICK ultrasonic sensors perform measurement and detection tasks in a wide variety of application areas on colored, shiny, or transparent surfaces, which are particularly challenging for optical sensors. Even adverse ambient conditions such as dust, dirt, or fog hardly affect the measurement result. The broad detection range also allows for a large field to be monitored with just one sensor – with a measuring range of 13 mm to 8 m. No matter where they are: the ultrasonic sensors from SICK are at your side in any industry. The extensive product portfolio offers you a wide range of solutions for your application. See for yourself.

Find out more about the principle of operation of the ultrasonic sensors.





(Acoustic) time-of-flight measurement

The sensor emits an acoustic pulse that is reflected by the object being detected. The time required for the pulse to go from the sensor to the object and come back again is measured, evaluated and converted into the distance as follows.

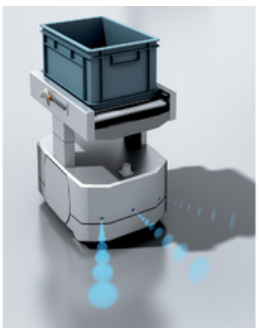
Distance = speed of sound x total acoustic time of flight (t2) / 2

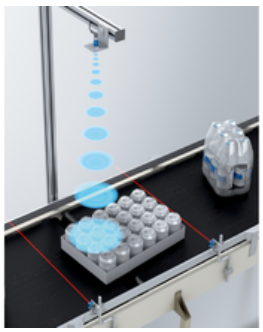
Scanning range of ultrasonic sensors

In general on ultrasonic sensors, the less sound the object being measured absorbs, the greater the possible scanning range. The operating range specifies the distance up to which measurement on common objects with sufficient operating reserves is possible. Under ideal conditions, the sensor can even be used up to its limiting range. Switch panels are used for ideal assessment of application capability. The dark blue area shown in these switch panels shows an example of the sensor's working range if a round rod is detected. The light blue area shows the maximum detection range (limiting range) which can be achieved under ideal conditions for easily detectable objects, such as the aligned plate given here. This area between the sensor and the measuring object should be kept free of other objects to prevent them from being detected accidentally. The detectability and detection range of an object depend on its reflective properties, size, and alignment. Depending on the application, the sensor may also be able to detect very small objects, e.g. metal wire.

Applications in focus

Ultrasonic sensors are true all-rounders. SICK ultrasonic sensors demonstrate their reliability and precision in virtually any application, from measuring distances or detecting solid, powdered, or liquid media. No matter the industry, no matter the application.





→ SICK ultrasonic sensors show their strengths in the contact-free detection of objects in all imaginable applications. These all-rounders reliably and precisely master all automation requirements on your processes.

SICK LifeTime Services

SICK's services increase machine and plant productivity, enhance the safety of people all over the world, provide a solid foundation for a sustainable business operation, and protect investment goods. In addition to its usual consulting services, SICK provides direct on-site support during the conceptual design and commissioning phases as well as during operation.
The range of services not only covers aspects like maintenance and inspection, but also includes performance checks as well as upgrades and retrofits. Modular or customized service contracts extend the service life of plants and therefore increase their availability. If faults occur or limit values are exceeded, these are detected at all times by the corresponding sensors and systems.

Consulting and design
Application-specific advice on the product, its integration and the application itself.

Commissioning and maintenance
Application-optimized and sustainable – thanks to professional commissioning and maintenance by a trained SICK service technician.

Service contracts
Extended warranty, SICK Remote Service, 24-hour helpdesk, maintenance, availability guarantees and other modular components can be individually combined on request.

Select the right product variant and accessories directly online. There you will also find example applications as well as downloads such as CAD dimensional models, operating instructions and software.
www.sick.com/UM12

SICK AG
WALDKIRCH
GERMANY
SICK.COM

SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnership with our customers is more than just a promise: Together, we optimize productivity, elevate quality, protect health and safety, and sustain the future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions.

SICK

Sensor Intelligence