Telemecanique **Osisonic**
ultrasonic sensors

Technology
echoing your needs

Square D
Telemecanique

Schneider Electric
Building a New Electric World

Osisonic Ultrasonic Sensors

> **“the essential addition to other detection technologies in the case of demanding applications”**

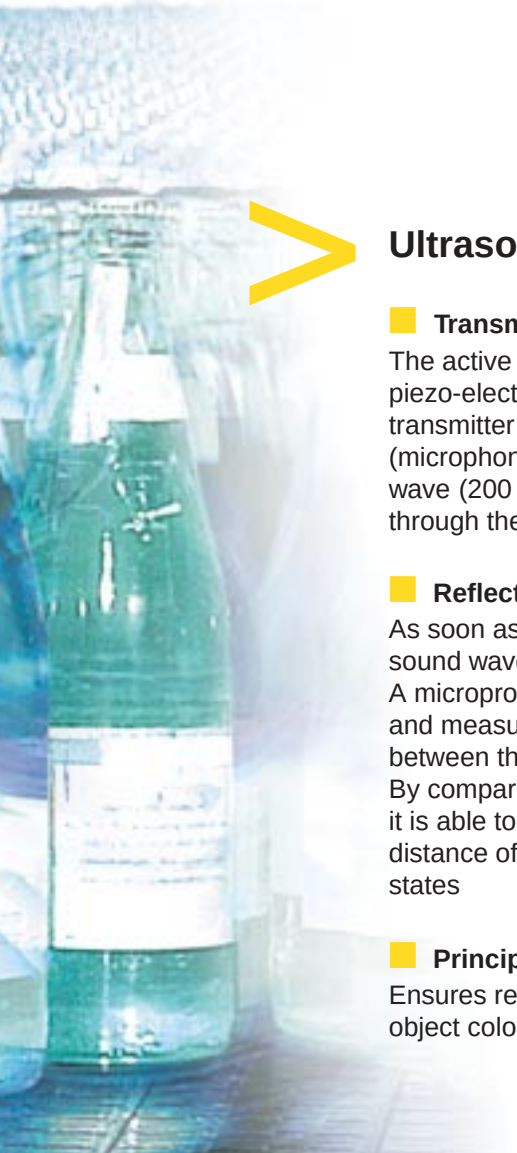
Detection of all materials
conductive or insulating, regardless of their colour or opacity, and without any need for adjustment.

High immunity to dust,
soiling, humidity and ambient noise.

Plastic cases highly resistant to chemical agents.

Sensing range configurable via learning mode:
high precision foreground and background suppression.

Long sensing distance
with compact overall size: 50 mm sensing distance for a 12 mm diameter cylindrical sensor.

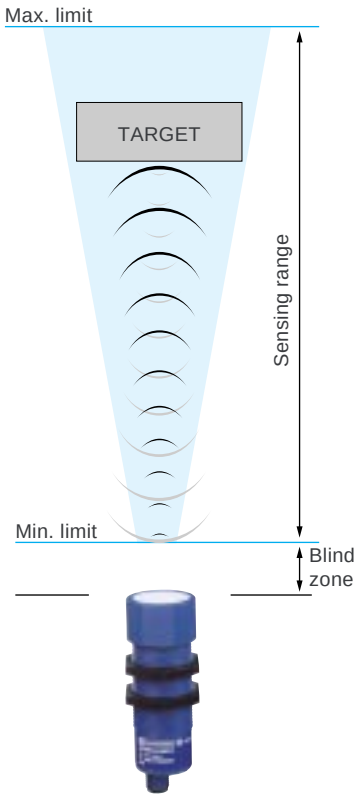


Ultrasonic technology

Transmitter-receiver
The active part of an ultrasonic sensor is a piezo-electric transducer which acts as both transmitter (speaker) and receiver (microphone). It generates a pulsed ultrasonic wave (200 to 500 kHz). This wave moves through the air at the speed of sound.

Reflected sound wave
As soon as it encounters an object, a reflected sound wave (echo) returns to the transducer. A microprocessor analyses the signal received and measures the elapsed time interval between the transmitted signal and the echo. By comparing this with preset or learned times, it is able to calculate the precise sensing distance of the object and control the output states

Principle based on time measurement
Ensures reliable operation, regardless of the object colour or its opacity.



Main **applications**

Food processing industry
- Liquid level detection without immersion or contact with the liquid
- Detection of powders
- Detection of glass bottles

Packaging
- Detection of objects passing on a conveyor belt

Automobile industry
- Detecting the presence of car windscreens

Paper-making industry
- Belt end detection
- Sheet/web break detection

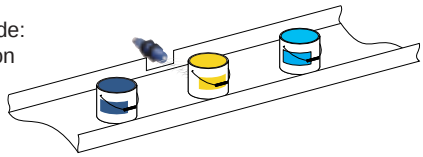
Windscreen detection on a car assembly line

Detection of powder level in a hopper

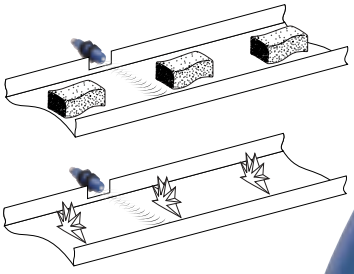
Detection of glass bottles on a conveyor

Modes adapted to technical requirements

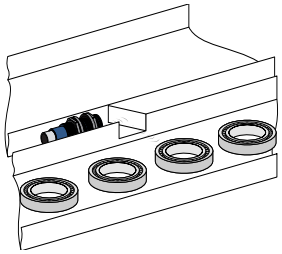
Proximity mode:
easy installation



Reflex mode :
for detection of absorbent materials such as sponges or objects with a rough/uneven surface.



Proximity or **reflex** mode with 90° reflector:
for installation in confined spaces.



Benefits of Osisonic

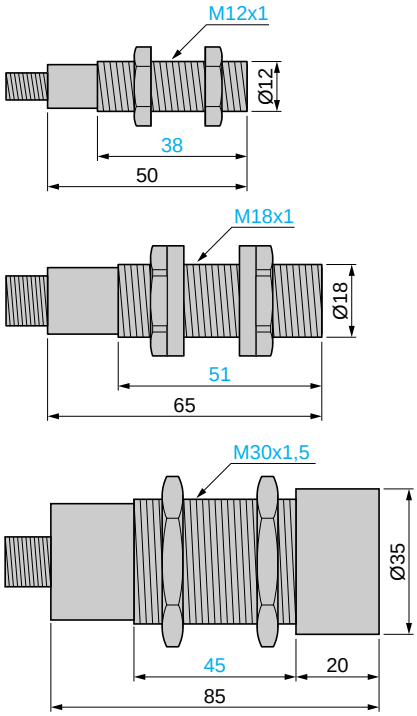
- **Detection of all objects without any need for adjustment:** metal, plastic, liquid, powder, black, white, transparent…
- **High precision:** foreground and background suppression.
- **Standard cylindrical formats** M12, M18, M30 compatible with numerous fixing accessories.
- **Suitable for use in difficult environments:** sealed products, insensitive to dust and ambient noise, temperature compensated and resistant to chemical agents.
- **M12:** single product, easy to install in the machine (taking up 3 times less space than all existing models).

  Ideal compromise between sensing range and overall dimensions (50 mm).
- **M30:** easy to set up and great precision by learning the two extremes of the sensing range.
  Example: detection of a Ø 2 mm pin between 600 and 612 mm.

  Learning function allows operation in reflex mode for detection of absorbent materials.

Ø12 **XX512A1KAM8**
Ø18 **XX518A1KAM12**
Ø30 **XX630A1KAM12**

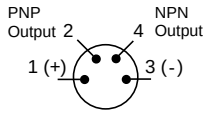
Dimensions



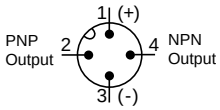
Connector schemes

(viewed from sensor pin side)

Osisonic Ø12 - M8 connector



Osisonic Ø18, Ø30 - M12 connector



Technical characteristics

■ **System**
Ø 12 mm and Ø 18 mm: proximity (500 kHz)
Ø 30 mm: proximity or reflex (200 kHz)

■ **Sensing range**
Ø 12 mm → from 6 mm to 50 mm
Ø 18 mm → from 25 mm to 150 mm
Ø 30 mm → from 50 mm to 1 m

■ **Sensing range adjustment**
via learning mode on Ø 30 mm model only

■ **Maximum detection angle**
± 10°

■ **Supply**
12-24 V d.c. with protection against reversed polarity

■ **Output type and switching capacity with overload and short-circuit protection**
3-wire PNP + NPN, NO < 100 mA

■ **Volt drop, closed state**
< 1 V

■ **No-load current consumption**
Ø 12 mm < 20 mA
Ø 18 mm < 60 mA
Ø 30 mm < 80 mA

■ **Maximum switching frequency**
Ø 12 mm < 125 Hz
Ø 18 mm < 80 Hz
Ø 30 mm < 10 Hz

■ **Materials**
Case: **ULTEM®** plastic
Sensing face: silicone membrane for Ø 18 mm and Ø 30 mm
ceramic for Ø 12 mm

■ **Degree of protection**
IP 67 conforming to IEC 529

■ **Weight**
Ø 12 mm: 26 g
Ø 18 mm: 48 g
Ø 30 mm: 130 g

■ **References**
Ø 12 mm: XX512A1KAM8
Ø 18 mm: XX518A1KAM12
Ø 30 mm: XX630A1KAM12

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