

RETRO-REFLECTIVE SENSOR

OR270478

Transparent! So what?



IPF ELECTRONIC

OPTICAL SENSOR SYSTEM OR270478 **AN INNOVATION SETS NEW STANDARDS**

Sensor technology that can detect transparent objects already exists for all conceivable applications. So why invest in a new optical sensor system?

Currently available solutions, e.g. conventional optical diffuse reflection sensors or ultrasonic sensors, at times have a number of drawbacks in practical use and therefore constantly present users with new challenges.

This is not the case with the **OR270478** – transparent objects, regardless of the material they are made of, are no problem for this innovative retro-reflective sensor from ipf electronic. This is made possible through the special properties of the **OR270478** – a sensor which sets new standards, particularly with regard to checking the presence of transparent objects.

Properties that you should learn more about so that tomorrow's challenges become yesterday's problems.

IT'S ALL ABOUT WAVELENGTH

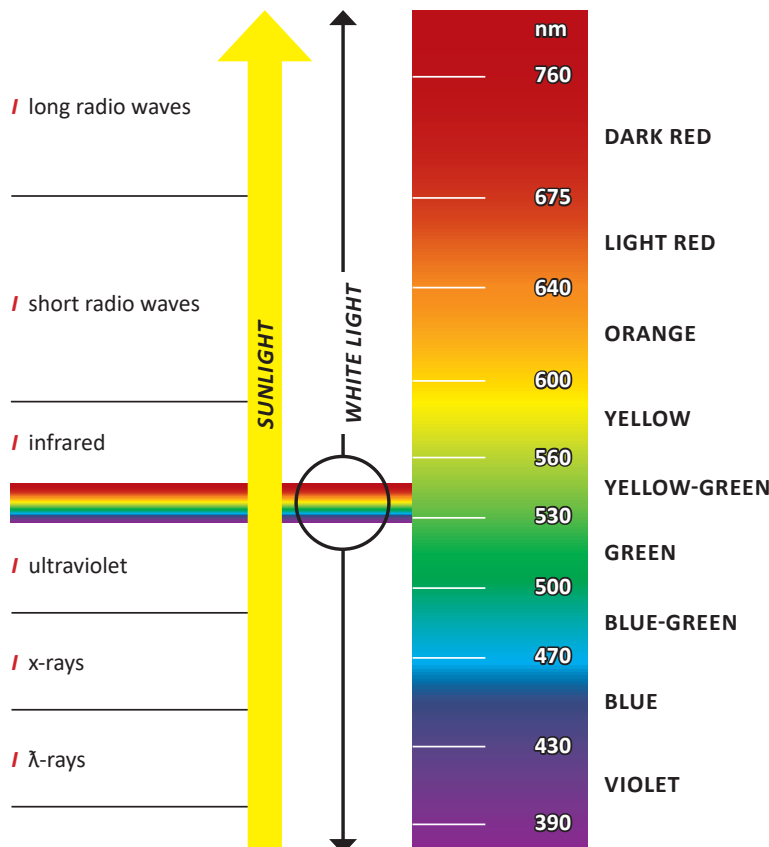
LIGHT THAT DOESN'T PASS THROUGH TRANSPARENT OBJECTS

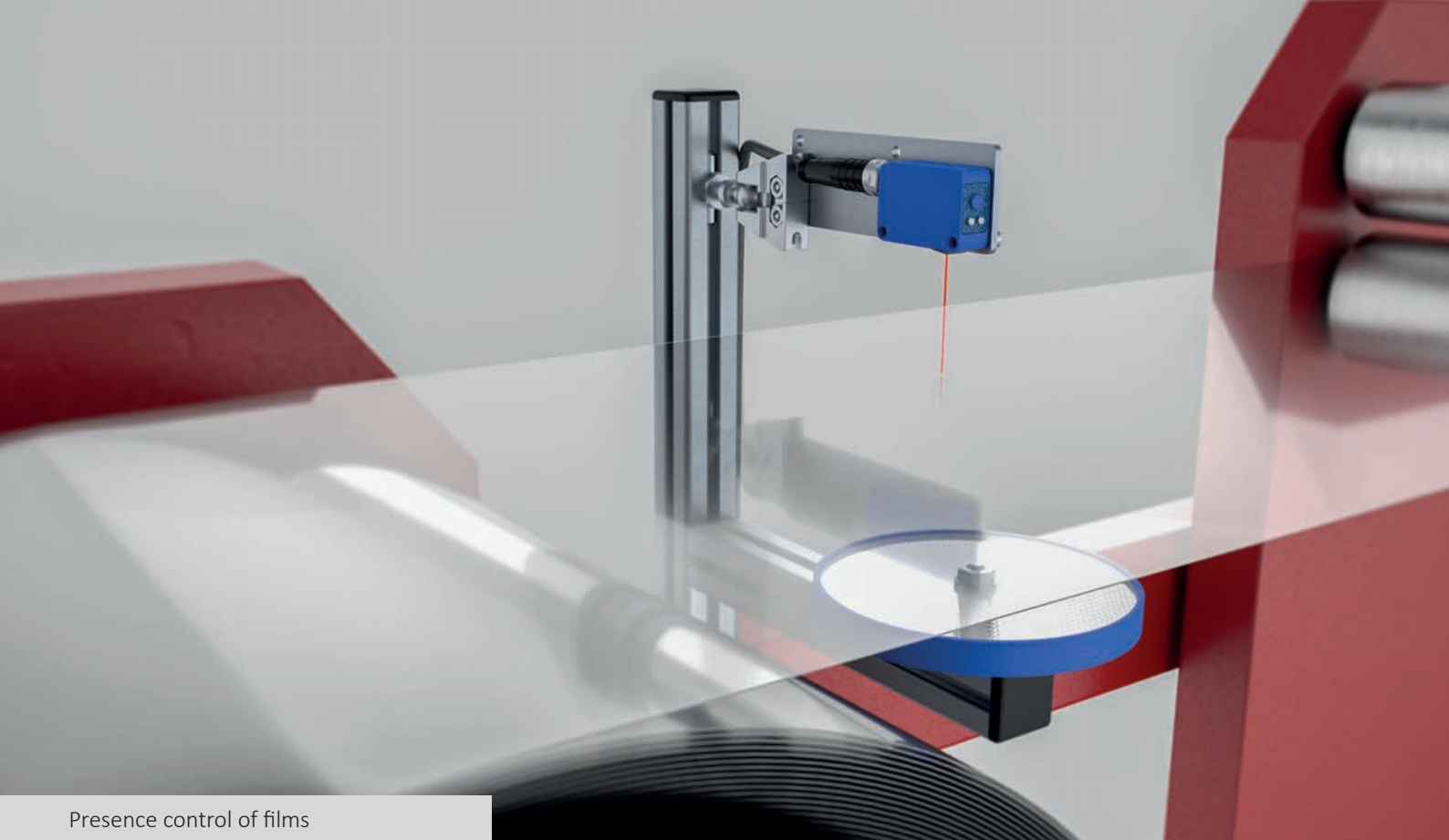
Transmittance, i.e. the optical permeability of transparent objects for radiation in the visible and infrared range, frequently presents conventional optical diffuse reflection sensors with challenges because transparent objects generate virtually no optical damping in such devices. The switching threshold of these systems must be correspondingly low, which in turn makes them extremely sensitive to dirt and other deposits.

If the visible red and infrared light of conventional optical diffuse reflection sensors has a wavelength of around 700nm and 880nm respectively, the **OR270478** retro-reflective sensor operates using extremely short-wave, polarized UV light with a wavelength of just 275nm.

Due to its physical properties, the UV light emitted by the **OR270478** cannot pass through otherwise difficult-to-detect, transparent materials. As far as the solution from ipf electronic is concerned, objects made of such materials no longer have the property of transparency, but are detected in almost the same way as non-transparent objects. In this case, the transmittance of such objects for red and infrared light is completely irrelevant.

The benefits: Extremely reliable and fast detection of objects, even those with high transmittance (e.g. glass). No more multiple switching during detection of the same object. The shape and thickness of the object to be detected have no effect on the measurement result. Not even dirt or water droplets influence operation of the retro-reflective sensor.





Presence control of films

SYSTEM COMPONENTS, START UP AND APPLICATIONS

SIMPLE SOLUTION FOR A WIDE VARIETY OF TASKS

Like in every retro-reflective sensor, the transmitter and receiver are also integrated in the **OR270478**. The transmitting element is an LED that emits polarized UV light. Transmitting and receiving optics are located in one plane. This special autocollimation optics ensures reliable near-range object detection without blind zones, even through small openings. For a perfect operation, a reflector (**AO000548**) is required whose special materials are especially suitable for use with UV light. The retro-reflective sensor and the reflector can be used in a distance range between 40 and 1200mm.

The **OR270478** is taught in the usual way based on the 2-point procedure, which achieves the best measurement results and is always recommended in the case of materials that are particularly difficult to detect (e.g. transparent films) or if dirt or water impede the detection of an object.

To detect thick, transparent materials, e.g. bottles or containers made of glass or plastic, pressing the teach button once without an object being inside the light barrier (1-point procedure) is in most cases sufficient for quick and easy teach-in of the system.

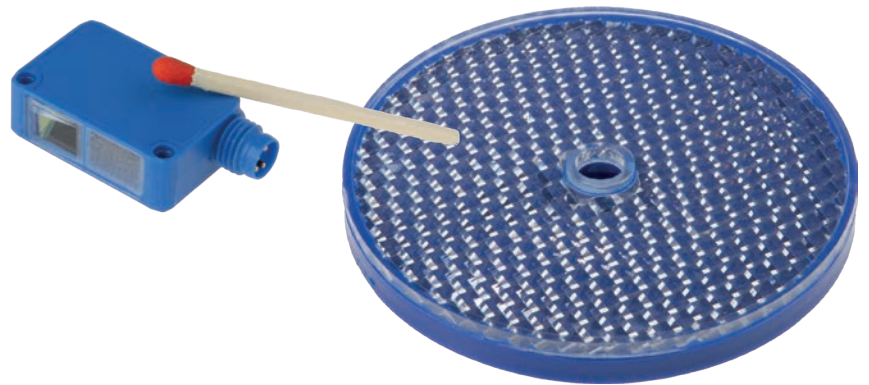
The **OR270478** convinces with its high degree of flexibility and is therefore ideal for a broad range of different tasks. Typical applications are, for example, the glass, food, pharmaceuticals and packaging industry, e.g. position control of glass panes, filling glass or PET bottles, checking plastic packaging or detecting and checking transparent films.

TRUE GREATNESS IS IN THE DETAIL

COMPACT, ROBUST AND FUTURE-ORIENTED

Measuring just 37mm x 10mm x 20mm, the **OR270478** is an extremely compact solution which allows easy and problem-free installation especially in the case of applications where space is very constricted. Equipped with a standard IO-Link interface, the **OR270478** can also be integrated easily in Industrial Ethernet environments and therefore offers a series of future-oriented features with high added value and at no extra cost, e.g. remote start up, diagnostics functions and additional configurability.

Other technical properties include a high switching frequency of $\leq 1\text{kHz}$, an output current (max. load) of 100mA and the protection class IP67 so that the **OR270478** can also be used in hostile industrial environments.



Position control of glass panes

ONE FOR ALL: RETRO-REFLECTIVE SENSOR OR270478

KEEPING A CLEAR VIEW WHENEVER TRANSPARENCY IS A FACTOR

HIGHLIGHTS

- / Reliable detection of many kinds of transparent objects
- / Detection irrespective of object shape, material thickness or object position
- / High insensitivity to dirt and water droplets
- / Either 1 or 2-stage teach procedure
- / Standard IO-Link interface for integration in Industrial Ethernet environments
- / High switching frequency of $\leq 1\text{kHz}$ for use in high-speed processes
- / High operational reliability (protection class IP67)
- / Compact design ideal for confined spaces

APPLICATIONS

- / Position control of glass or PET bottles during filling
- / Detection of plastic containers on conveyor belts
- / Detection of transparent packaging and safety films
- / Checking of transparent films for tears and other damage
- / And what task do you need a solution for?

Position control of bottles on a conveyor belt



EFFICIENT ADVICE ON ALL MATTERS

PERSONAL SERVICE AND RAPID SOLUTIONS FOR YOUR PROBLEMS

Every call is important! When you contact our technical hotline, you contact experienced employees who will answer your questions competently and conscientiously. Our goal is to provide you with comprehensive and individual advice around the clock. Our expert team of in-house trained personnel is here to support you.

In almost all industrial applications, problems are becoming ever more complex and varied. Solutions to these problems often require external expertise. You will find this expertise together with a high level of specialist and problem-solving competence at ipf electronic. We are happy to discuss tasks which may seem small with you. For us, this is a matter of course.

ipf electronic is a renowned supplier of industrial sensor technology and a reliable partner. No customer query is ignored and no on-site customer appointment is missed. Our extremely broad range of products will convince you.

Diversity, expertise, consultation and flexibility:
This is ipf electronic's recipe for success.

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