

# TECHNICAL SPECIFICATIONS

multi-Thick

---

OPTICAL SENSOR FOR  
MULTI-LAYER THICKNESS  
MEASUREMENTS

---

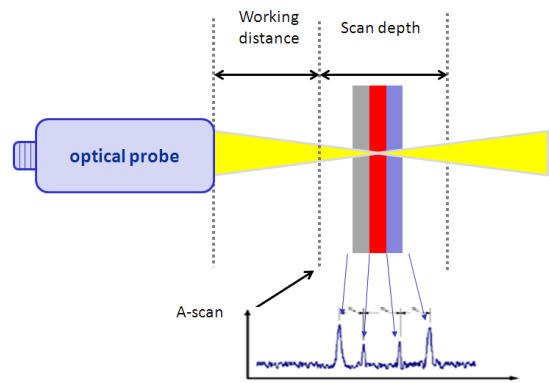
## HOW IT WORKS

The measuring system is based on low coherence interferometry. It represents the latest measuring solution available on the market for optical, non-contact measurement thickness of sample with complex structures.

Layers of different materials generate an optical reflection due to the difference in the refractive index. The optical head collects all the combined reflections: the resulting signal will contain information about the position of each reflection. The processing allows the reconstruction of the 'A-scan' profile (intensity of reflection vs. position).

It provides full information of the structure of the measuring object in just one measurement point.

The processing of the A-scan with embedded algorithms allows the detection of each interface and measurements of the thickness of each layer.



## APPLICATIONS

The sensor measures any transparent or semi-transparent material. Coatings on substrates can also be measured.

Target markets are:

- multi-layered plastic film (barrier and/or functional)
- coating/lamination
- multi-layer/multi-lumen medical tube
- coating on glass, metal or optical device

## ADVANTAGES

- complete depth information of the sample
- one-sided measure (reflection mode)
- high accuracy
- non-contact
- quick integration in production lines or QA/QC laboratory

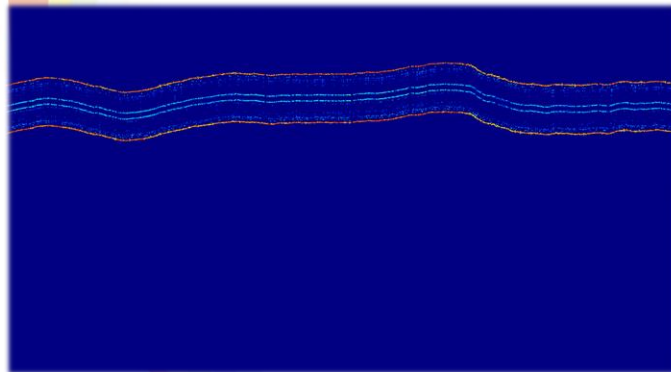
## TECHNICAL SPECIFICATIONS

	ML1	ML2	ML3
<b>A-scan measuring rate</b>	250 Hz		
<b>light source</b>	superluminescent diode		
<b>scan depth</b>	4 mm	4 mm	1.8 mm
<b>position accuracy</b>	< 1 micron		
<b>axial resolution (n=1.5)</b>	7.3 micron	4.4 micron	2.1 micron

## DEPTH IMAGE RECONSTRUCTION: B-SCAN

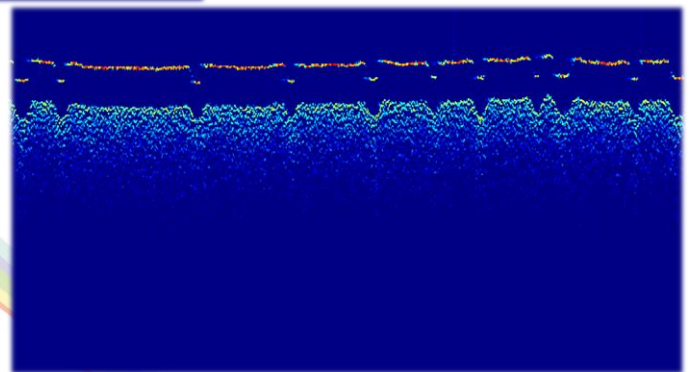
The inner structure of a sample can be represented as an image if the sensor is used in combination with a scanning system, or if the object is moving under the optical head. In such a situation, it is possible to combine the positional data with the A-scan data to produce color image with depth information: this is the 'B-scan'.

In these images, the pixel color retains to the intensity of the reflection, so shows the position of interfaces. In the B-scan the depth information is displayed from top to bottom, while the scanning axis is from left to right.

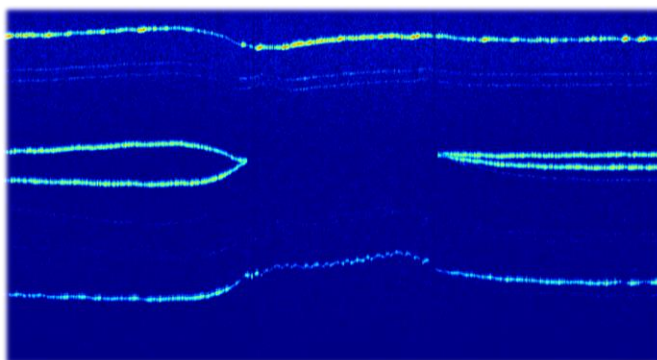
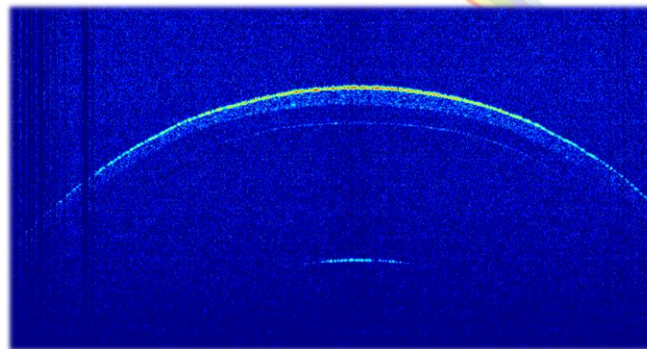


**multi-layer film for  
food/medical**

**Coating measurements**



**multi-layer medical  
tube**



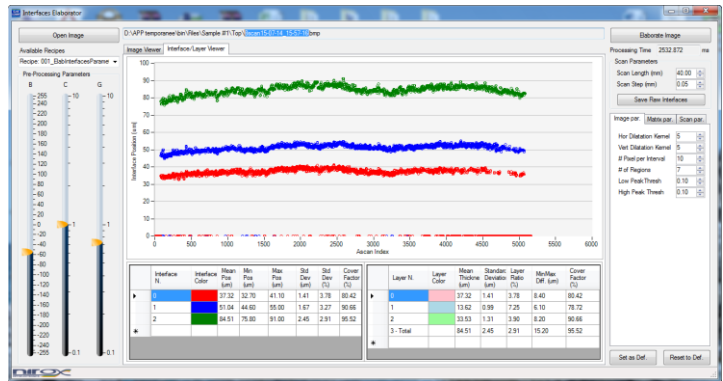
**plastic welding band**

## EMBEDDED PROCESSING

A-scans and B-scans are post-processed by embedded software according to the type of the structure and measurement protocol selected.

Solutions for multi-layer films, coatings over diffusing/metal substrates and profilometry can also be provided based on the same sensor technology.

Custom algorithms can also be developed for challenging tasks.



## MANUFACTURER

### Nirox srl

Via Ferri, 2 – 25010 Borgosatollo (BS) – Italy  
phone: +39-030-2304606 fax:+39-030-6950235  
e-mail: info@nirox.it – Internet : www.nirox.it

## UK-IRELAND CONTACT AND SUPPORT



Scantron Industrial Products Ltd  
Monarch Centre, Venture Way  
Taunton, Somerset  
TA28DE  
United Kingdom  
Tel: 01823333343  
Email: scantron@scantronltd.co.uk