QSS
SENSORS AND COMPONENTS
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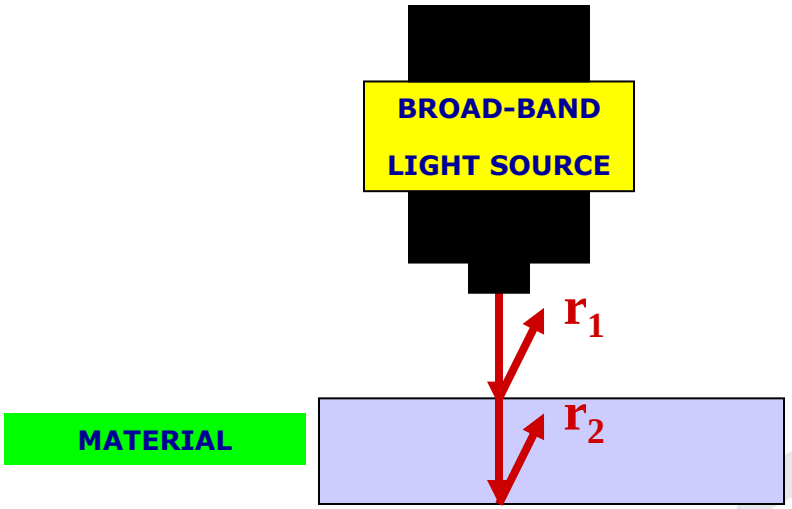
nirox
OPTOELECTRONICS

optical thickness measurement
µ-thick and m-thick systems

how does it work?

patented by **Nirox srl**, it represents the latest measuring solution available on the market to optically measure thickness.

the measure is based on the light reflected at entrance and exit interfaces (r_1 e r_2).



optical head collect both reflections and make it possible to obtain interference between them.

the resulting optical signal intensity has a component directly related to the physical thickness *d* and the index of refraction *n* of the material.

applications

materials measured: any transparent or semi-transparent material (colours and/or particular surface finish need specific testing); coating on substrates

what is measured: total thickness of a single or multi layer structure; thickness of a single layer coated on glass/metal. Layer discrimination of sandwich structure is under development

target markets

- plastic material extrusion
- glass production lines (flat, hollow)
- coating on glass or metal substrates
- medical plastic devices
- coating on optical devices
- semiconductors, photo resist and oxides

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main advantages

- ✓ **one-sided** measure (reflection)
- ✓ high **accuracy**
- ✓ **non-contact**, non destructive measurement
- ✓ light used is **not dangerous**
- ✓ **easy to use**
- ✓ **quick integration** in laboratory and production lines

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technical specs.

specification	μ-Thick		m-Thick	
	EP1	EP2	EP3	EP4
measurement rate [measurements /sec.]	120			
light source	halogen	SLD		
accuracy	<0.1 micron			
maximum thickness [micron] (n=1.5)	100	380	1800	4000
measuring spot dimension	2 mm	0.05 mm		
working distance [mm]	40			
working distance range [mm]	±5 mm	±2.5 mm		

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system configuration

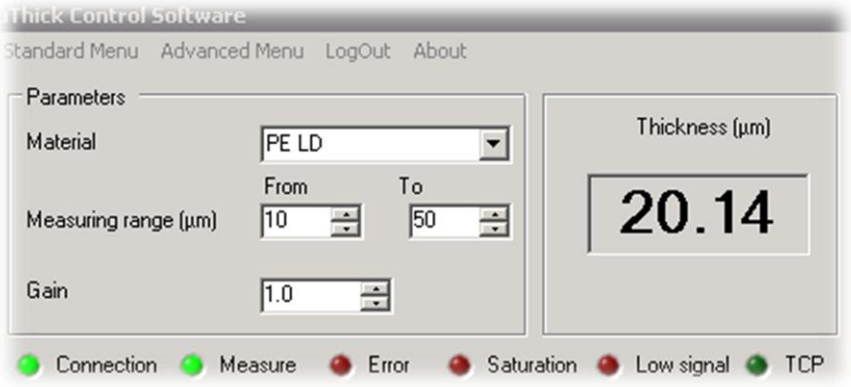
code	description	application
MI	optical head is fiber-optic connected to the measuring unit that is equipped with processing electronics the measuring unit provide thickness data output through analog/digital connection	**lab or production**
HI	"all inside the box": the measuring unit is equipped with optical head and processing electronics the measuring unit provide thickness data output through analog/digital connection	**lab or production**

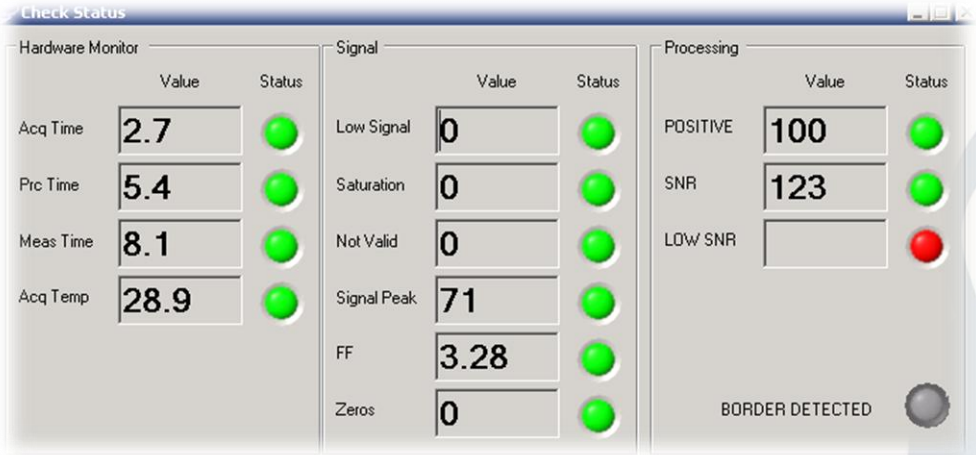
software interface

user-friendly interface (measuring unit)

thickness calculation and raw-measurement statistics

digital data output management with supervisor system (TCP/IP, RS485)





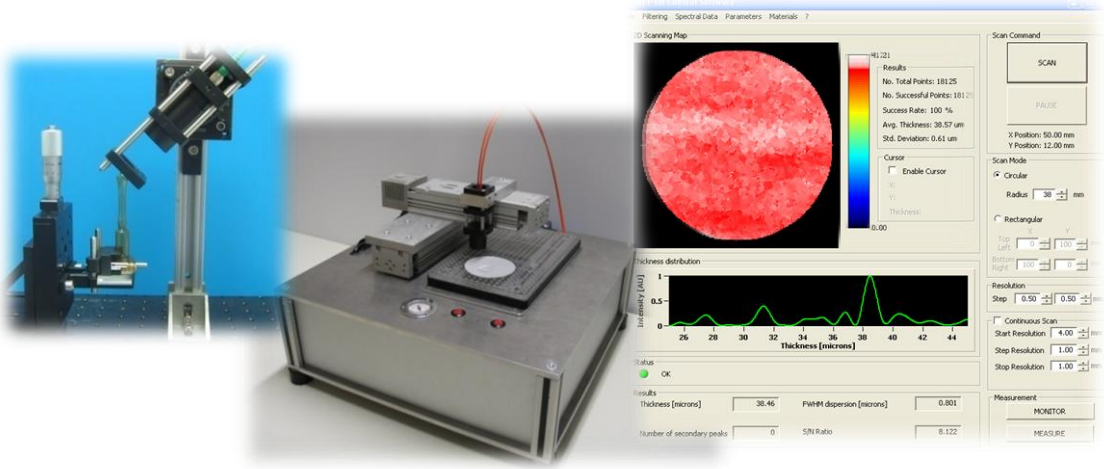
system options

distributed optical heads: a single measuring unit with an optical switch can drive several optical heads for distributed measurements

supervisor software: real-time data display and production data management

laboratory scanner: delivery of stand-alone unit with motorized x-y positioning system for measurement of thickness profile (1D) or maps (2D)

custom software: software customization for specific needs



contact us

for additional information and free sample testing contact

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