

Thermo Scientific ShadowMaster direct thickness sensor

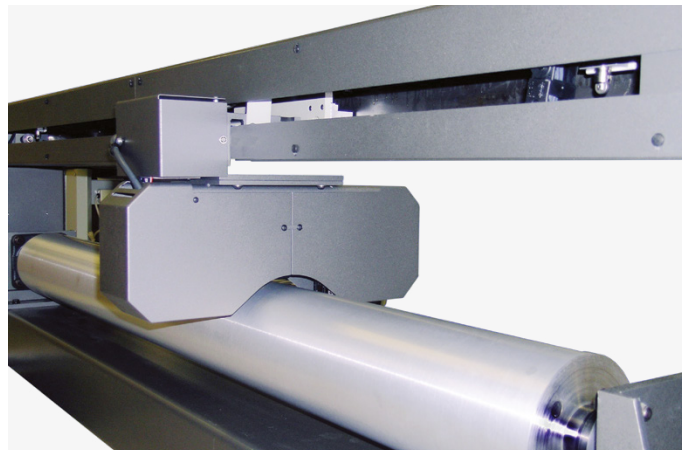
The Thermo Scientific™ ShadowMaster direct thickness sensor provides accurate and reliable measurement of a variety of materials, leading to greater process control, improved quality and increased productivity. It offers a fast installation, low cost of ownership and a high return on investment.

Features

- Thickness measurement is not influenced by material type, color or density
- Non-nuclear and license-free
- Non-contacting, no web marking
- No instrument air or water utility requirements for sheet temperature under 60°C
- Fast installation, easy to use
- High reliability and ease of maintenance
- Does not require regulatory licensing, protective gates or interlock devices

Applications

- Extruded sheet
- Calendered sheet
- Foam
- Composites
- Coated substrates
- Multilayer and embossed materials



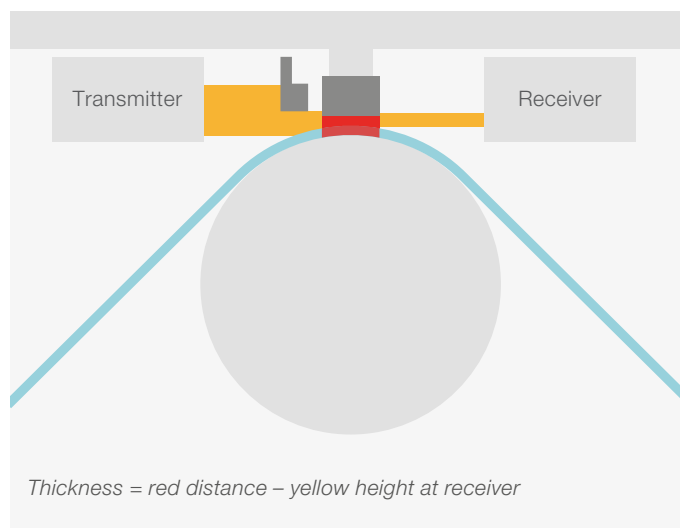
The ShadowMaster direct thickness sensor provides non-contact, online thickness measurement of a moving web. The sensor is designed to deliver accurate thickness measurement of materials up to 6500 microns (260 mils) and the measurement package comprises optical, inductive, and temperature sensors.

A 30mm beam of diffused LED light is emitted from a transmitter in a parallel, uniform manner across a tall, narrow window aperture. This light is focused on a detector array (receiver) on the other side of a reference roll. The material running over the roll interrupts the light path to form the measurement principle. An integrated inductive sensor provides the roll position. The material thickness is computed as the difference between the inductive sensor and the optical sensor measurements. The maximum gap between the inductive sensor and the reference roll is 8mm.

The 159mm (6.25in) diameter reference roll is made of non-magnetic, durable 316L stainless steel, suitable for most medical grade and food packaging applications. Air scan compensation is used to eliminate any residual reference roll and frame rail run-out variations. Temperature compensation has been incorporated to balance the thermal effects seen by both the optical and inductive sensors. This provides greater measurement stability over a wide range of environmental temperatures.

The ShadowMaster direct thickness sensor can measure material with a variety of surface finishes including rough and glossy. The measurement is insensitive to the product color, transparency and opacity. ShadowMaster direct thickness sensor can also measure the total thickness of single, multi-layer and embossed materials. Metallic or other conductive materials however, must be excluded.

ShadowMaster direct thickness sensor method of operation



General specifications – ShadowMaster direct thickness sensor

Measurement range	Up to 6500 μm (256 mils)
Static repeatability (2s)	$\pm 1 \mu\text{m}$
Dynamic repeatability (2s)	$\pm 2 \mu\text{m}$ (based on 20 scans)
Response time	15 msec
100% streak response	1.6 mm (0.063 in)
Sheet temperature range <i>Note: Cooling options available for higher temperature applications</i>	Model SHD00-00: up to +45°C (+113°F) Model SHD00-01: up to +60°C (+140°F)



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