Product Information Sheet

IG710S and SR710S Sensors

NIR Measurement Technology for the Coating and Converting Industries

Application Areas:

- Coated Paper, Film & Foil
- Labelstock
- Tape
- Laminates
- Steel Sheet

High Speed, High Performance Measurements for the Coating, Converting and Paper Industries

Non-Contacting Precision IR Gauges: providing high resolution measurements of coatings, laminates or moisture

The IG710S and SR710S Gauges combine high speed with accuracy to achieve robust, reliable measurements on a fast moving web. Their selective infrared technology enables single position coating measurement, obviating the need for the extra hardware required for subtractive methods

With a 7.5 millisecond measurement speed (up to 10 times faster than other IR gauges), their patented design achieves improved accuracy and, incorporated into an NDC TDi System, the industry's best cross-web and machine direction profiling, for closer operation to target.

The IG- and SR710S are engineered to be unaffected by changes in process and ambient conditions such as:

- Lighting Fluctuations
- Temperature
- Relative Humidity
- Air Quality (dust, evaporates content etc.)
- Web Flutter

as well as the subtle changes that can occur within the substrates from batch to batch.

■ IG710S

The Versatile IR Gauge for the Measurement of moisture, coatweight or coating/laminate thickness on a wide range of paper, board and film based substrates

■ SR710S

Engineered Specifically for Measuring Thin Coatings on Metal Foils or Metallized Paper or Plastics using a unique patented design

NDC TDi Systems: delivering the Process Visibility & Control required to provide Higher Production Quality & Efficiency

NDC "Total Distributed Intelligence" Systems use a robust, easy-to-install architecture that requires a minimal amount of hardware and provides unmatched visibility to all components within the system.

As part of a TDi System, the IG- and SR710S, like all NDC Sensors, function as "i-Sensors". These are "smart" devices with the signal processing carried out in each gauge's high speed processor prior to transmission to the display consoles and control devices on the network. The same is true for the scanning frames, so that when positional data from a scanning frame is combined with measurement data from a sensor, the resulting profile is of the highest possible resolution.

This enables fully automated control strategies, providing reliable process information so that managers can make informed decisions about the process.

IG710S

The Versatile IR Backscatter Gauge for the measurement of moisture, coatings and laminations in a wide range of substrates...

The IG710S

The Gauge delivers cost-effective measurement solutions through its ability to use selective NIR technology to measure key value added coatings converted products, as well as being the ultimate on-line moisture gauge.

Precalibrated

The IG710 is delivered pre-calibrated for each application and is highly tolerant to the changing operating conditions found in the converting industry. The satisfaction of low cost of ownership is guaranteed, since its legendary long term stability means there is no need for re-calibration or systematic monitoring or correction for drift.

Robust Optical Design

Its patented optics are able to withstand web flutter in the order of +/- 50mm (2.0 in) and the robust NDC measurement algorithms provided with each application mean that it is desensitized to within-product changes such as color and basis weight changes.

Adjustment, if required, to local reference methods is more straightforward than with any other sensor. In short, the IG710S delivers a return from day one.

Measurement Capabilities

The IG710S has extensive and versatile measurement capabilities, including:

- Moisture in paper
- Water-based coatings on paper and films
- Adhesive and other organic coatings on paper
- Extruded or laminated polymer on paper or board

Applications

With its flexible measurement capabilities, the IG710S can be applied in a very wide range of applications. The IG710S has been extensively and successfully applied in processes such as:

- Labelstock Production
- Packaging Manufacture
- Paper and Board Making
- Converting Processes

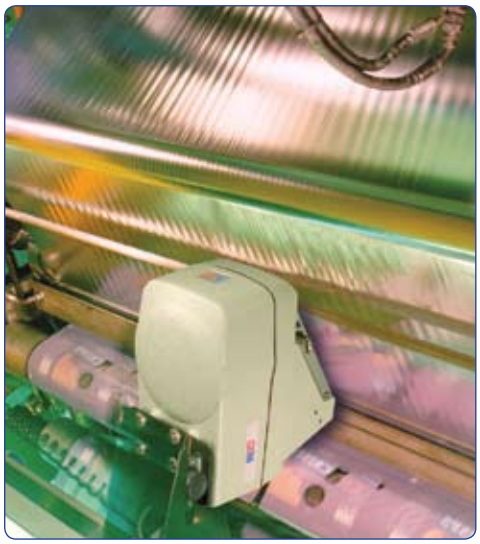
and many more...

SR710S

Engineered Specifically for Measuring Thin Coatings on Metals and Metallized Susbtrates using a unique patented design

Outstanding Precision

The SR710S achieves outstanding precision in the on-line measurement of thin organic coatings on metals and metallized susbtrates. These coatings may be just a few mils or microns thick, but the combination of more intense mid-IR wavelengths with the high sensitivity detector used in the SR710S mean that the gauge can measure to an accuracy of up to 0.1 micron, while remaining unaffected by changing ambient and process conditions..



Highly Cost Effective

The SR710S positively impacts process profitability through its ability to accurately measure very thin high-added-value coatings which have traditionally been very difficult to gauge reliably.

Its compact size, performance and suitability for scanning measurements, make it significantly more cost effective than the alternatives, such as twin scanning X-ray or beta gauges being used to generate a subtractive calculation of the coating.

SR710S and IG710S Advantages

Both are designed to be installed on an NDC single beam scanner, and incorporated into an NDC TDi Web Measurement and Control System with the various display and control options that provide for tangible benefits in process efficiency and product quality.

They are both optimized for their specific application areas and measurements to deliver a no-compromise solution.

Benefits include:

- Reduced start-up and grade change times, with rapid set-up
- Better machine- and cross direction average coating thickness control
- Reduced fossil fuel consumption through better drying system control
- High cross-web resolution for coating machine fine-tuning
- Significant cost savings through reduction of raw material usage
- Low noise allowing confident control to maximum product tolerances
- Enhanced product quality and consistency

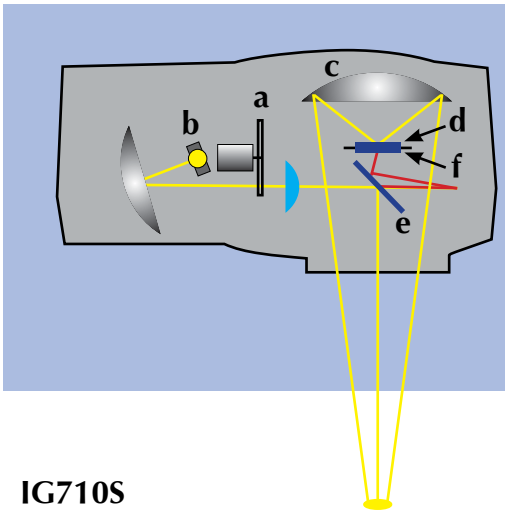
How do NDC Gauges Work? The Technology behind the IG- and SR710S...

The gauges work on the principal that water & organic products, such as coatings, absorb NIR (Near Infra-red) Light at specific wavelengths. When exposed to this NIR light, a product absorbs a proportion related to the amount of constituent present, and reflects the rest.

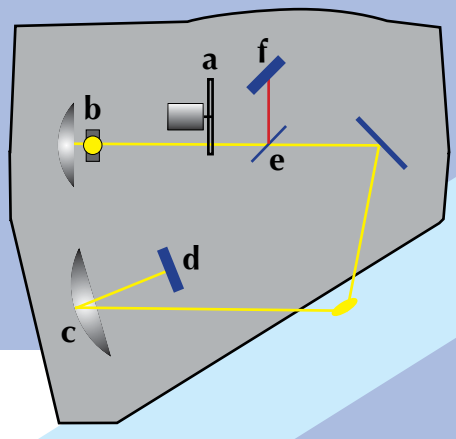
The gauges generate and emit these specific wavelengths by using rotating optical filters (a) to transform the energy from a QH lamp (b) into sequential pulses of NIR light at the desired wavelengths.

The reflected NIR light is captured by a special mirror (c) and focused onto a light-sensitive detector (d). Before leaving the gauge, a beam-splitter (e) diverts a portion of the beam to the secondary detector (f), to form the reference signal against which the reflected light will be compared.

The differences between the IG- & SR710S pertain to the nature of the susbtrates they measure: the IG captures the diffusely reflected energy from products such as paper, whereas the SR makes use of the reflectivity of the metallic substrate to direct the energy through the coating.



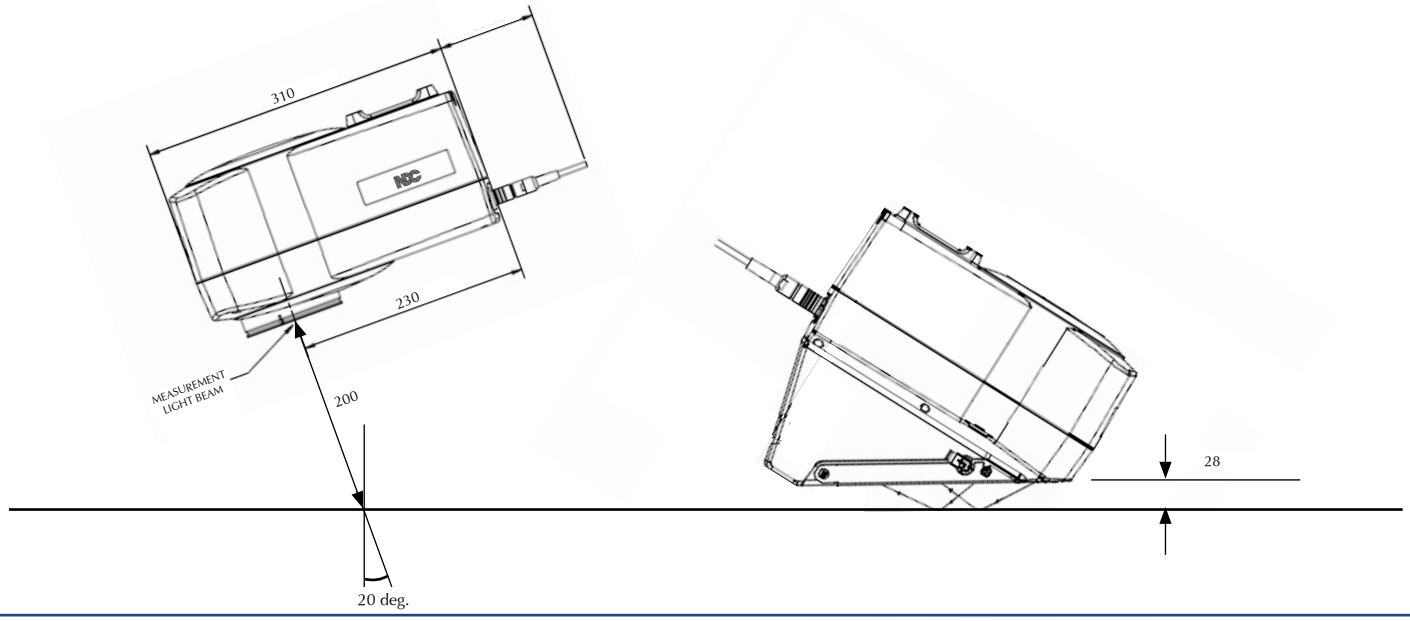
IG710S



SR710S

Technical Specifications

PARAMETER	IG710S	SR710S
Measurement Capabilities (see NDC for any not listed here)	Moisture in Paper (up to 400 gsm basis weight): 0-12% Moisture in Paper: Higher Moisture Levels Adhesives and other Organic Coatings Waterbased Coatings on Paper and Films Resin Coatings Extruded Coatings on Paper and Board	Thin Organic Coatings on Foils Wax or Lube on Steel Adhesives on Aluminum Foil or Metallized Papers Lacquers on Metals/Metallized Substrates Extruded Polymers on Metals
Gauge to product distance	200mm (8 inches)	28mm (1.1 inches)
Accuracy (indicative only - see NDC for application-specific accuracy values)	± 0.1% (Moisture 0-12%) ± 0.2gsm (Coatings up to 50 gsm) ± 0.5gsm (Coatings 50 gsm up to 500 gsm)	± 0.05gsm (Coatings up to 2 gsm) ± 0.1gsm (Coatings up to 5 gsm) ± 0.2gsm (Coatings 2 gsm up to 20 gsm) ± 0.3gsm (Coatings 10 up to 40 gsm)
Repeatability	± 0.1 µ 2 Sigma over 48 hours	± 0.01 µ 2 Sigma over 48 hours
Product pass height tolerance	± 50 mm (2 inches)	± 5 mm (0.2 inches)
Beam Patch Size	25mm (1 inch) - circular 10mm (0.4 inches) - square [optional]	52mm x 28mm ((2.0 x 1.1 inches) - elliptical
Response Time	50 milliseconds to 1000 secs, exponential or linear	
Calibration	SpeedCal™ pre-calibrated. No routine re-calibration required	
Reliability	System MTBF of 10 Years, Lamp and Motor have 5 year Warranty	
Network connectivity	Industrial EtherNet	
Electrical	Power 24v DC - Consumption 42 Watts CE Compliant to Low Voltage Directive Eurostandard: EN61010-01 and for Electro-magnetic Compatibility: EN50081-1 & EN50082-2	
Environmental	Ambient Temperature: Up to 50°C. (Cooling Optional) Cast Alloy Sensor Housing	
Maintenance	No routine maintenance is required. Active Diagnostics and integral window contamination monitor are included.	



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