

PrediktIR

For Bulk Materials Applications



On-Line near infrared moisture measurement with the pedigree of stability for process control & monitoring



- ▶ Enhance Product Quality & Consistency
- ▶ Reduce Waste
- ▶ Faster Start-up & Product Change Times
- ▶ Increase Process Productivity

On-Line Measurements That Can Be Trusted

NDC Technologies brings its world renowned NIR technology experience of over 40 years to bulk materials processors with tight budgets and the requirements are for the most part moisture measurements.

For years, generic instrumentation suppliers have offered moisture gauges which promise measurements at a low price. However, in practice, experience has not met expectation: these gauges need regular re-calibration, have poor measurement accuracy and instrument stability which limit their application where process control or even simple monitoring is important.

These same suppliers have said that for process monitoring gauge accuracy is not important. In reality, where measurement only is the chosen strategy, process adjustment decisions will be taken based upon the output of the gauge to manually adjust the process. Otherwise, why measure on-line at all. As such, reliable instrument performance is vital!

Now NDC offers, through PrediktIR, a dependable, stable and accurate on-line measurement which allows processes to be tightly and consistently controlled manually or automatically with confidence.

Our pedigree of solid long-term instrument stability, no effects from ambient condition changes and tolerance to process physical changes (such as pass height) are all offered in PrediktIR so that end users can see the benefits of on-line process gauging and achieve an enduring return on investment and contribution to their bottom line.

Users around the world have come to trust the NDC brand, and with more than 30,000 instruments installed our presence is truly global in a huge range of applications and customers.



Key benefits of on-line measurement:

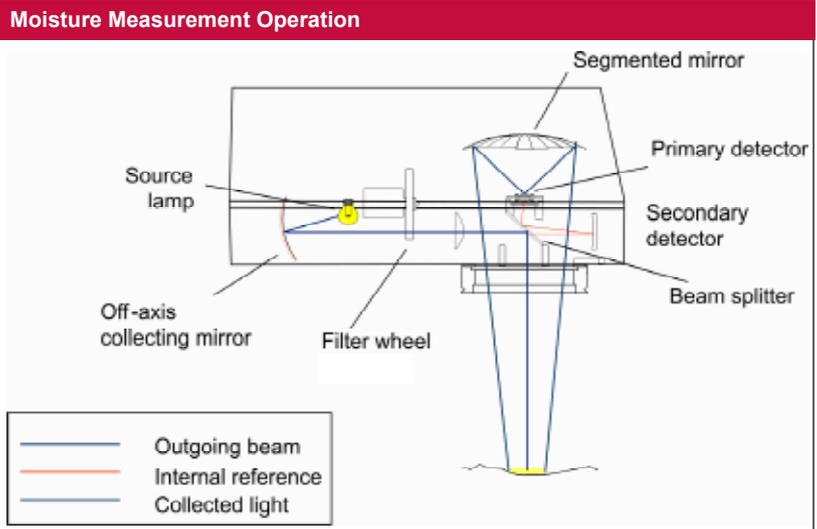
- ▶ Reducing waste or scrap
- ▶ Improving product quality and consistency and gaining a competitive advantage
- ▶ Faster start-up and product change times
- ▶ Increasing product yield through closer operation to the product specification
- ▶ Ensuring optimal product sensory characteristics through not over-drying
- ▶ Ensuring legislative compliance and meeting safety standards
- ▶ Avoiding risk of fire or explosive damage through not over drying

How PrediktIR Measures Moisture

Proven technology for proven results

PrediktIR is based upon NDC Technologies' proven optical filter technology. Light at a specific wavelength is absorbed by moisture. The rotating filter wheel projects pulses of light at this wavelength, and other reference wavelengths not absorbed by moisture, onto the product. Some of this light is absorbed and the rest is scattered/ reflected. The gauge light collecting optics focus the reflected intensities onto a detection system which compares the amount of moisture absorption with the reference wavelengths providing a measurement independent of pass height variations, changes in source lamp intensity and atmospheric dust.

Algorithms convert the infrared signals into an output that is proportional to moisture content and calibration is carried out using the normal slope and intercept (Span and Trim) controls to achieve agreement with the customer's primary reference method. The measurement speed is very fast (over 60Hz) and therefore delivers a continuous measurement of moisture which can be output by 4-20 mA analogue devices or using serial bus or Ethernet protocols to the process computer.



Key Applications

Bulk Materials:

- Biomass
- Bagasse
- Wood chips

Chemicals, Minerals and Building Materials:

- Ceramic powders
- Sinter mix
- Bauxite
- Dolomite
- Phosphates
- Nitrates
- Limestone
- Clay
- Sand
- Concrete mixes
- Power station fly ash
- Sodium carbonate
- Flourspar



If you do not see your application listed, please contact us.

PrediktIR In The Process

Gauging configurations and installation

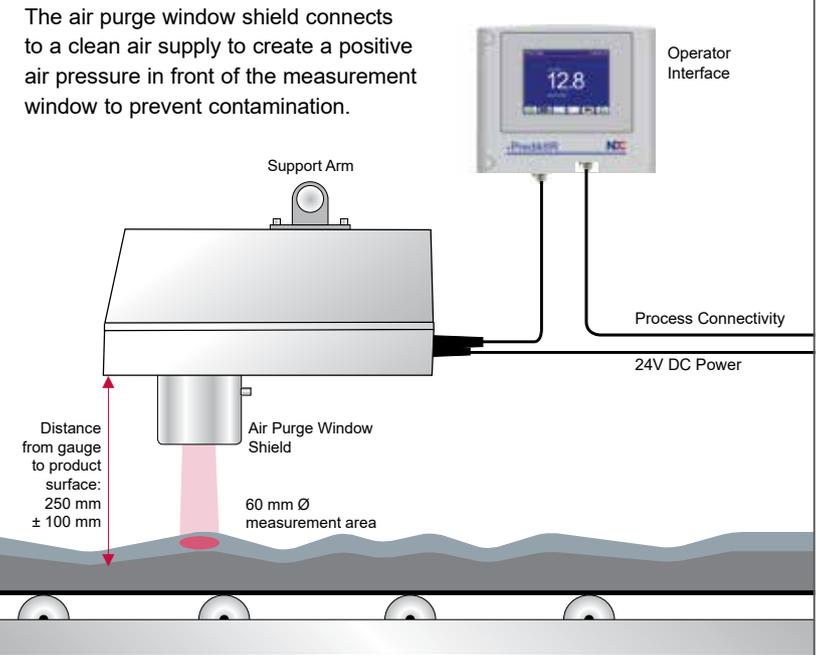
PrediktIR in its most basic configuration is supplied as a single gauge with Operator Interface (OI), with 10m of interconnecting cable. It is also available in a dual gauge configuration both connected into a single OI. These dual configurations allow for the most common single-point measurements, for example after a dryer or conditioner. With dual heads, measurements before and after a drying or conditioning process can be monitored.

The gauge as standard is supplied with an **Air Purge Window** to keep the sapphire optics free of dust and other volatile contaminants. In line with best practices, window contamination can be monitored as standard and alarms output to a PLC in the event routine maintenance has been neglected.

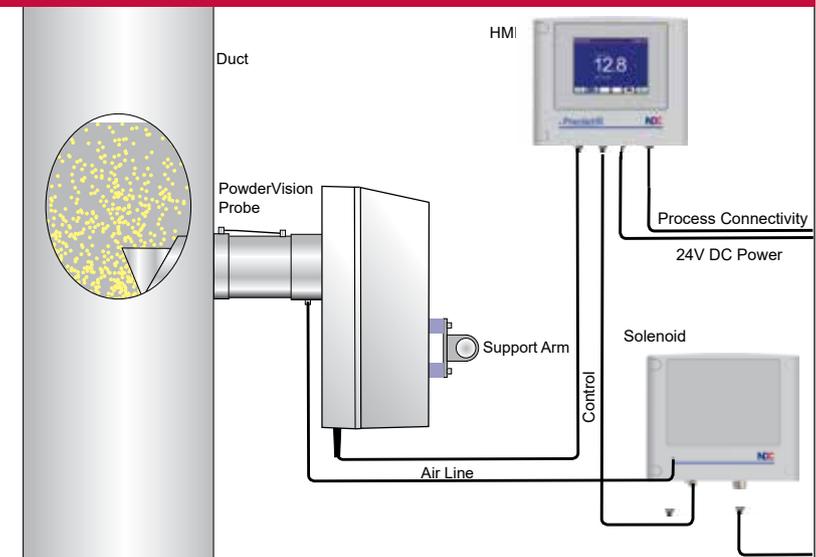
PrediktIR can be installed easily in most processes and as a non-contact measurement it is typically installed above a conveyor belt carrying the product.

In cases where the product is transported in enclosed ducts, NDC has a number of sampling systems including **PowderVision** which allows access to the product in gravity-fed ducts. For high-temperature environments, the gauge head can be cooled using an integral Vortex cooler attached to the side of the casing allowing it to operate in temperatures up to 80°C (176°F).

PrediktIR Recommended Configuration



PrediktIR PowderVision Sampling System

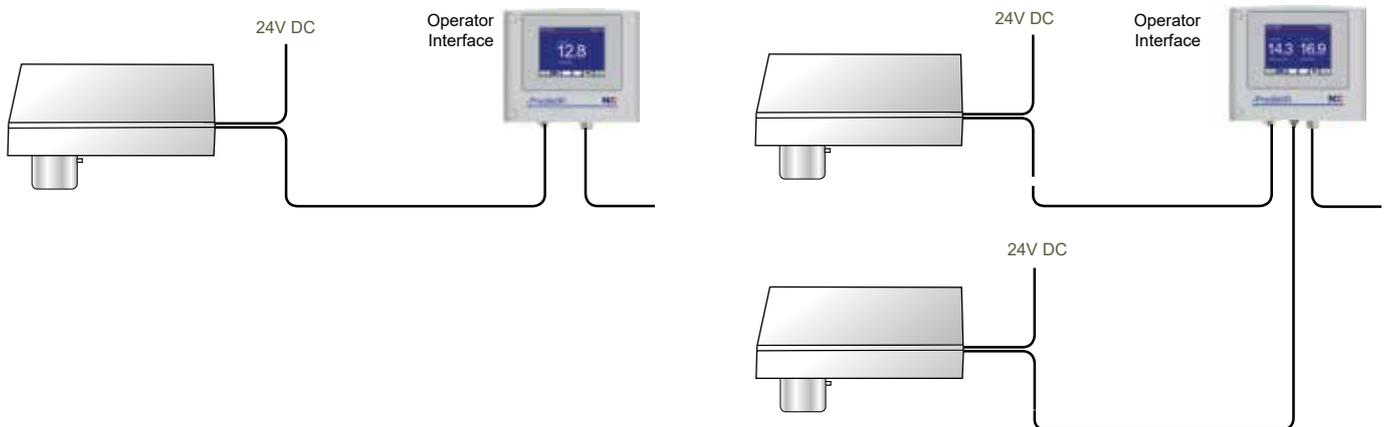


PrediktIR Specifications

Source Lamp	Quartz halogen 20 W underrun, lifetime >40,000hrs
Filter Wheel Motor	24 V brushless DC
Operating Temperature Range	0-45°C (32-113°F)
Gauge and IO	10 m of interconnecting cable between gauge and OI, Cat 5e LAN cable
Power Consumption	35 W (Gauge and Operator Interface)
Head Construction	Stainless steel with Air Purge Window
Response Time	2-1000 seconds configurable
Measurement Speed	63 Hz
Environment	Gauge & OI IP65/Nema 4
Optical Window	Sapphire
Moisture Range	0-95% depending on application
Process Connectivity	4-20 mA standard, 8 Digital Inputs (Opto-Isolated), 8 Digital Outputs (FET Driven)
Optional	Ethernet IP, ProfiNet, Modbus TCP, Profibus, DeviceNet all from OI
CE compliant	EMC EN61326

System Configuration

Configuration includes one or two gauges, stainless steel with Air Purge Window(s), connected to an Operator Interface (OI) with 1/4 VGA colour touch screen and Universal Power Supply delivering 24V DC with 10m of cable to gauge and OI.



Company overview

Combining industry-best performance and reliability with a global support structure

NDC Technologies, headquartered in Irwindale, California, designs, develops and produces a wide range of process measurement and control instrumentation for a broad scope of manufacturing industries.

NDC has manufacturing facilities in California, Dayton, Ohio and Maldon, UK, with centers of excellence at each of these locations including Loncin, Belgium. In addition, there are direct sales and support facilities in China, Japan, France, Germany and Italy. There is also a highly trained network of Sales and Service distribution channels in more than 60 countries around the world.

NDC Technologies is structured to serve its key industry segments with two distinct business units:

► Food, Bulk and Packaging

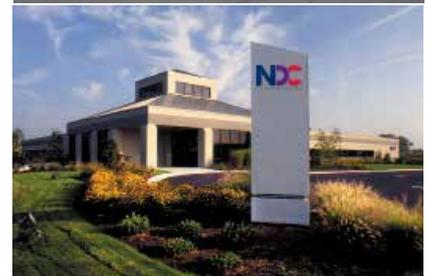
In packaging, NDC provides basis weight, thickness, coat weight and moisture measurement and control systems for a diverse array of applications in the converting and film extrusion industries and also provides solutions for customers in nonwovens and calendering.

For the food and bulk industries, NDC delivers both on-line and at-process analyzers for the measurement of key constituents such as moisture, fat, oil and protein. NDC's broad spectrum of measurement solutions are used in the food, chemicals, minerals building materials, pharmaceutical and tobacco industries.

► Cable, Metals and Tubing

In the steel and aluminium industries, NDC offers advanced solutions for the measurement of thickness, width, flatness, edge shape, coatings, and length and speed of sheet and long casted products.

NDC serves the wire, cable, fiber optic, pipe and tube industries with a broad portfolio of on-line and off-line measurement and control solutions for the dimensional monitoring of diameter, ovality, wall thickness, eccentricity, length and speed, and other parameters.



NDC Technologies is represented in over 60 countries worldwide. www.ndc.com

a spectris company

NDC Americas

Tel: +1 937 233 9935
Email: info@ndc.com

NDC Belgium

Tel: +32 4 239 90 10
Email: sales@ndcinfraed.be

NDC Japan

Tel: +81 3 3255 8157
Email: ndcjapan@ndc.com

NDC Italy

Tel: +39 0331 454 207
Email: ndcitaly@ndc.com

NDC India

Tel: +91 9650752420
Email: ndcindia@ndc.com

NDC United Kingdom

Tel: +44 1621 852244
Email: enquiries@ndc.com

NDC China

Tel: +86 21 6113 3609
Email: info@ndcinfraed.com.cn

NDC Germany

Tel: 08001123194
Email: info@ndcinfraed.com

NDC Singapore

Tel: +65 91994120
Email: apacsales@ndc.com



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