



RELIABLE
ACCURATE
REAL-TIME
AGRI AND FOOD
MEASUREMENT



DA 7350
In-line NIR Instrument



CONTINUOUS MEASUREMENT



AUTOMATIC PROCESS CONTROL

Optimize your process with real-time NIR measurements

Many food and agricultural processing operations have the potential to improve several aspects of their operations through accurate, timely knowledge of their production processes, and product characteristics. While manual sampling and analysis is useful, it takes time and only provides a snapshot at that instance.

The **DA 7350 In-line NIR sensor** provides continuous, simultaneous measurement of parameters such as moisture, protein, fat/oil, ash and much more. This real-time measurement enables automated process control and helps companies worldwide optimize processing, reduce scrap and re-work while improving product consistency and quality.

Feature and Benefits

- Real-time measurements
- Industry 4.0 Ready
- Integrated camera
- Rugged design to suit production environments
- Easy integration through standard industry communication interfaces





FULLY INTEGRATED
IN TO PLANT CONTROL SYSTEMS



WEB-BASED USER INTERFACE
PROVIDE RELIABLE RESULTS 24/7

The importance of In-line monitoring

By continues real-time measurements, 24/7, manufacturing process can be controlled and optimized. This in turn reduces expensive product give-away, waste, re-works, and claims. Additionally, in-line instruments are used to control drying and blending and monitor incoming raw materials to ensure smooth processing, something that help increase yield and end-product consistency. Continuous monitoring also provides complete quality records of the entire production batch or run.

Applications

Measure granules, pellets, flours, meals, powders, pastes, syrups, flakes, liquids and more.

The most commonly measured parameters are moisture, protein, ash, fat/oil, fiber and starch.

The DA 7350 can be mounted on pipes, hoppers, conveyors, mixers, at the entrances of a product stream, at its outputs, before or after dryers, before packaging or at other critical points in the process.

Flour Milling Maximize flour extraction through accurate real time ash measurements. Blend wheat types to reach correct protein content and save on higher priced raw materials. Control and optimize gluten addition.

Starch Production and Corn Milling Optimize moisture inclusion and save on raw materials and energy by monitoring and controlling the dryers. Control the starch/gluten separation and avoid costly giveaways.

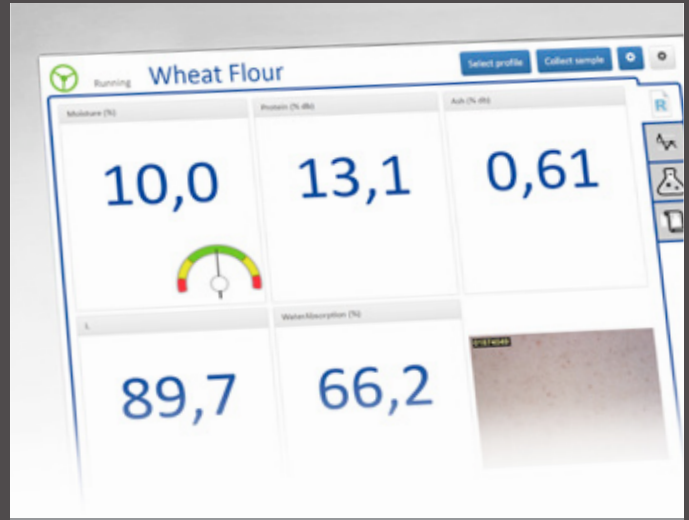
Oilseed Processing Measure oil in meal for optimized extraction. Increase yield by optimising protein content in the soybean meal through controlling the hulls add-back. Optimize the moisture inclusion, while remaining within specifications.

Dairy Processing Increase yield and reduce energy costs when spray drying milk powder by monitoring product moisture in real-time. Minimize grade change-over time and reduce waste; monitor black particles. Optimize the fat/moisture content of butter.





MODERN NIR INSTRUMENT
COMBINED WITH CAMERA



INTUITIVE GRAPHICAL
USER INTERFACE

Modern technology that delivers



Integrated camera

Color measurement An integrated digital camera measures color. The dedicated lighting provides optimal conditions for color measurement enabling superior repeatability and improved alignment with laboratory methods. The standard color measurement according to CIE LAB space produce L*, a* and b* results. The example shows the measurement of Durum semolina.



Speck Count The DA 7300 includes speck counting as standard, which helps flour millers detect cloth breakages quickly. Specks can be classified by size and contrast in up to 16 different groups. By configuring alarms you can be notified immediately in case speck count exceeds set limits.



Real-time Process View Users can access real-time images of the process from any networked computer – be it in the next room or 1,000 kilometers away from the instrument. The images can be incorporated in to control system user interfaces and displayed in real-time. The images provide a unique, real-time view directly into the process stream. Operators can immediately detect presence of foreign material, visible defects, product color changes, and blockages. The system can be set up to automatically capture images of the product at various intervals.

Systems Integration

Great importance is placed on connectivity capabilities to communicate with existing plant control systems. We support many interfaces including: OPC UA, PROFINET, Modbus TCP, Fieldbuses and more. Benefits of integration in existing plant control systems:

- Implementation of automatic control loops is easily achieved
- Measurement information is presented in the familiar environment of the operators GUI, where it's most needed
- Measurement results are easily incorporated in standard batch reports and continuous data archiving for audits, tracking, and tracing purposes

Modern, intelligent instrument software

Internet of Things and Industry 4.0 bring huge benefits, but require that sensors and other equipment are prepared for it. Process Plus is a modern, dedicated web-based process instrumentation software. It is an easy to use software designed with the specific demands of the process industry in mind. The software includes a web-based user interface with both numerical and graphical displays. Owing to the web based architecture, you may use as many operator stations as you require, without the need to install additional software or licenses. Process Plus includes communication interfaces compatible with IoT and Industry 4.0.

Accessories

We offer a ranged of mounting accessories to facilitate easy installation.

1. Mounting Flange is a stainless steel flange for welding on to customers machines. This offers a highly flexible option, and provides a safe and easy instrument mounting.

2. Pipe section for slurries, pastes and suspensions to be insert in to existing pipe works.

3. Mounting Panel is a flexible and easy-to-use mounting option for conveyors and other flat surfaces.



1. Mounting Flange

2. Pipe section

3. Mounting Panel

Accurate, Robust, Reliable Calibrations

PerkinElmer has a large and diverse library of proven calibrations for raw materials, intermediates and finished goods. Parameters available for monitoring include moisture, protein, fat/oil, ash, starch, fiber, sugars and many more. For instances of customized processes or products where calibrations are unavailable, we provide calibration development services. Our highly trained and experienced Applications Teams help to quickly and efficiently get your instruments up and running.

Additional NIR Models

DA 7440 On-line NIR The DA 7440 can perform the same measurements as the DA 7300, but is designed for over-the-belt type measurements and is suitable in many situations where a product is transported on open conveyor belts and similar.

DA 7250 At-line NIR In many situations manual analysis is a good complement to in-line measurements. The DA 7250 measures the same parameters as the DA 7300, is very versatile and analyzes many types of samples in only 6 seconds. Its ease of use and robustness make it highly suitable both for production and lab environments.



SPECIFICATIONS

Power Requirements	24 V DC, 5 A
Dimensions (HxWxD)	313.5 x Ø 192 mm, 12.34 * Ø 7.56 In.
Net Weight:	9.75 kg (22 lbs.)
Operating Temperature Range	-10 to 45 °C, extended temperature range upon request
Ingress Protection	IP67 and IP69K
Measurements	NIR, Digital color camera
Speed of measurement	>20 spectra and measurements per second
Products	Grains, meals, flour, pastes, pellets, extruded products, etc
Parameters	Moisture, protein, fat/oil, ash, starch, sugar, speck count, Color in the CIE L*, a*, b* color space etc
Approvals	ATEX & IECEx Zones 22 and 21 in potentially dust explosive atmospheres
Communication	UPC UA, PROFINET, Modbus TCP, Profibus DP, Modbus ASCII, Analogue outputs, SQL Queries and more
Data Storage	128 GB of Solid State Primary storage

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