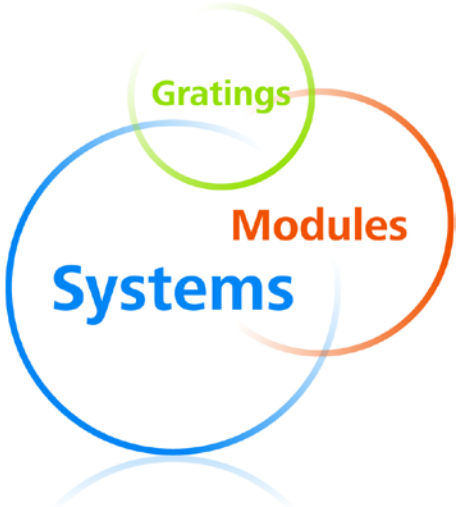
ZEISS Spectrometer solutions for the agricultural industry

ZEISS Optical Sensor Systems – One competence



Thanks to its years of experience in process spectroscopy, ZEISS has a considerable advantage over other manufacturers of spectrometers, who usually come from the laboratory analysis sector.

One-stop shop
The key to the success of ZEISS spectrometer systems is that ZEISS develops and manufactures all key components internally. The ZEISS product portfolio ranges from electronics and diffractive gratings to spectrometer modules in addition to electronics and software. The spectrometer system also incorporates applications specific software and sample calibration for the identification of substances. ZEISS' expertise in the these key components Core areas enables perfect matching of the single parts, components as well as the fast and uncomplicated modification to customer demands.

Pioneering from the start
Working with various partners in the agricultural sector, ZEISS was one of the first companies to develop spectrometers for use in the farming industry, on harvesting machines. Our spectrometer systems are used wherever precise and reliable measuring results are needed despite fluctuating temperatures, vibrations and shocks.
Since the beginning of these this collaborations, thousands of ZEISS spectrometers have been installed for use in agriculture.

Support also for your tailored solution
Our large team of sales and service staff available in our subsidiaries or well-structured global dealernetwork enables fast and expert support and assistance. Our internal applications specialists,calibration and design experts, and software developers provide in-process assistance for application inquiries and new challenges, as well as for the integration of ZEISS products.

Which system or solution is right for me?

With over twenty years of experience in process technology, ZEISS is one of the world's leaders of continous process measurement and analysis application. Through continuous collaboration with our customers, we have developed solutions which meet the highest performance standards, for which our customers can depend on in any process oriented situation. With acknowledged ZEISS competence in hardware, software and engineering, we are able to produce complete systems which are deployed in many applications in the agricultural industry.

Field testing/ seed cultivation

Application	analysis on plot harvester
Products	full corn plants, grass, unripe rye and wheat, grains such as wheat, rye, rapeseed, corn
Parameters	measurement of dry matter content and ptotein
Result	determination of quality, yield estimate, evaluation of cultivation success during field harvests, cultivation of new varieties

Grain trade

Application	inspection at transshipment points
Products	grains such as wheat
Parameters	measurement of moisture, protein, hardness, determination of quality
Result	sorting, drying and storage, sale in accordance with specifications

Grain processing

Application	measurement on delivery
Products	grains such as wheat
Parameters	measurement of moisture, protein, hardness
Application	in-process measurement
Products	flour
Parameters	measurement of moisture, color, protein and ash content, and starches for process control
Result	guarantee of quality

Bioenergy

Application	measurement on delivery; evaluation of incoming materials
Products	corn silage, grass silage, whole plant silage (renewable resources), liquid manure, residual materials
Parameters	assessment based on potential gas input – gas generation potential via DH
Application	in-process measurement
Parameters	stability of fermentation based on individual acids
Result	process control and optimization (room load, resting time)

Foodstuffs

Application	measurement on delivery
Products	feeding stuff
Parameters	measurement of energy content (proteins, fiber fractions such as ADF, NDF, lignin, cellulose, hemicellulose)
Result	process optimization (mixing processes) for the production of concentrated feed stuff

Fertilization

Application	measurement during or before spreading
Products	farm fertilizer
Parameters	measurement of nitrogen, ammoniac nitrogen (fertilizer value)
Result	process optimization, compliance with legal stipulations, saving the cost of chemical fertilizers and targeted spreading in order to influence the quality of the harvest

The robust solution: Corona extreme

READY FOR EXTREMES

Additional information about Corona extreme

No other spectrometer system from ZEISS incorporates as much application-related experience as the new Corona extreme.
Corona extreme is perfectly engineered for the tough conditions of the agricultural industry. The spectrometer system is manufactured and designed to always measures precisely and reliably even at shock values up to 50 g and temperatures ranging from -15°C to +50°C.

Corona extreme is also protected against voltage fluctuations and may be easily connected to a vehicle's on-board power supply. The proven high-energy illumination ensures very short integration times and thus outstanding optical properties that lead to excellent measuring results in the field, in the process and in the lab.
Equipped with an embedded controller, Corona extreme can be directly integrated into process software and enables direct analysis and output of quality parameters and spectral data. Corona extreme can be optimally deployed for a wide range of agricultural tasks: from harvest to storage and sorting grains up to the measurement of quality parameters of flour, biomasses and feed.

The compact solution: CORONA PLUS 45 NIR

Additional information about CORONA PLUS 45

CORONA PLUS 45 with flange

CORONA PLUS 45 with TURNSTEP

CORONA PLUS 45 NIR is enhanced evolution to the successful CORONA 45, one of the first spectrometers developed for use in farming where it has become a firmly established tool. The compact design (spectrometer, electronics and optics in one body) enables fast and easy assembly and disassembly.CORONA PLUS 45 NIR can be used in the process environment as well as the labroatory. CORONA PLUS 45 NIR is ideal for use on closed systems such as pipes, trough chain conveyors and mixers. In order to ensures reliable segregation from the material flow, the sensor can be combined with a flange suitable for the application. CORONA PLUS 45 NIR is particularly well-suited for agricultural tasks in harsh environments without the stringent demands of vibrations, shocks and temperature fluctuations.

The space-saving solution: CORONA PLUS REMOTE

Additional information about CORONA PLUS REMOTE

OMK ECLIPSE and OMK 500 measuring heads

CORONA PLUS REMOTE is a total spectrometer system available in a single-beam or dual-beam configuration.
The measuring probes, are connected to the CORONA PLUS REMOTE by fiber optics.

This combination is ideal for very narrow and challenging measuring positions. The compact size of the measuring heads permits installation in the tightest spaces.
In addition to the ingredients of agricultural samples, the color of the products can be measured with this space-saving combination which enables measurements in the visible spectrum in addition to NIR measurements.

The flexible solution: MCS 600

Reflection probes

Immersion probes

ARMOR measuring probe

Additional information about MCS 600

The MCS 600 line provides a high degree of flexibility and modularity. A large selection of spectrometers and lamp modules are available.
Users can choose which spectrometers, based on the wavelength range required (UV–NIR), and lamp modules they would like to use. The cassettes can be easily inserted into the corresponding position in the racks. The innovative housing system automatically recognizes which spectrometer and lamp cassette is being used.
Users also have access to an extensive line of accessories for a wide range of uses. This makes it possible to choose from various immersion probes, and reflection and transmission measuring probes. As a result of the high degree of flexibility of the MCS 600 resulting from its modular design, this solution is ideal for research and development. ARMOR, for example, is a reflection measuring probe designed for use on open systems such as conveyor belts, which can precisely analyze the content of foodstuffs and agricultural products regardless of spacing. Inhomogeneity of product distribution on the conveyor belt is irrelevant.

User-friendly and powerful: InProcess

InProcess is the latest software from ZEISS to control spectrometer systems.

InProcess enables the user to control several spectrometers at the same time. In addition to performance, ease of use is the primary purpose of the software strategy. Thanks to its clear format, it is intuitive to use. The graphic user interface, which is comprised of icon menus, has been optimized for touch screens and seems simple even at first sight.

The completely new InProcess software allows simple configuration of the measurment process, In addition, the software allows the use of calibrations that were created with all standard chemometric software packages. It can also be connected to field plan.

Simple, intuitive, efficient

Measurement menu

- Access to defined products
- Immediate start of measurement
- Display of measurement as value, trend or spectrum
- Display of limit values
- Assessment of values (as an option, the defined products may also be delivered)

Product set-up menu

- Creation of defined products
- Specification of measurement sequence
- Calculation, evaluation and integration into higher-ranking process environment
- Adjustment of views
- Support of calibrations (chemometric models) which are produced using standard chemometric software, e.g. GRAMS, UNSCRAMBLER, UCAL
- Control of events via digital I/O

User management

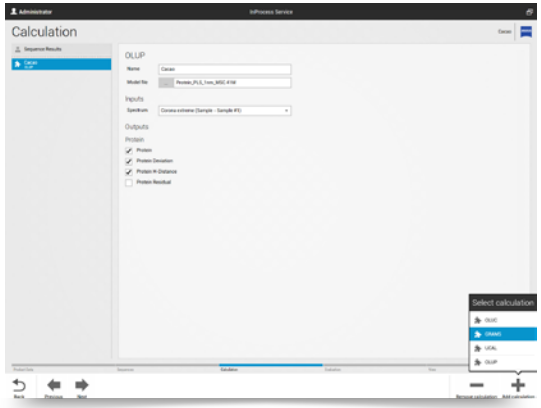
- Setup of various user groups with different access levels

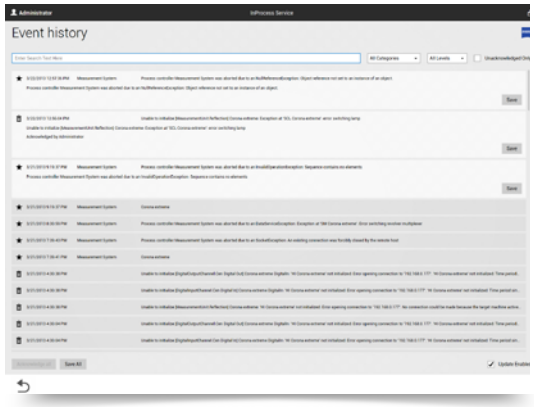
Measurement history

- Access to previous measuring processes
- File export

Event history

- Documentation of warnings and errors
- Error logs saved





Support also for your tailored solution

Our large team of sales and service staff available in our subsidiaries or well-structured global dealer network enables fast and expert support and assistance.

Global ZEISS service permits flexible, on-site support via telephone or Internet.

What we offer:

- Solutions tailored to your needs
- Customized optimization and extension of your systems with personal support
- Expert on-site support
- Remote support via telephone, email and Internet
- Speed through optimal resource planning of our experienced employees
- Customized maintenance and service agreements

Protect your investment and ask about the service agreement that best fits your needs. This ensures optimal performance and increases the service life of your ZEISS product. You can rest assured that your ZEISS product always guarantees reliable and precise results – day in, day out, year after year.

ZEISS Spectrometer solutions
for the agricultural industry

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