

## NIRS™ DA1650 flour analyser



### NIR beyond six second analysis

Capturing the latest developments in near infrared (NIR) analysis, the NIRS DA1650 analyser gives flour millers a robust, purpose-built quality control tool, ready-to-use for many flour types and with future-proof features for a lasting return on investment.

It is ISO 12099 compliant and IP65 certified to withstand dust and moisture. It is ideal for accurate routine analysis either in the laboratory or close to the production line.

Sample	Parameters
Direct measurements of flour samples	Protein, Moisture and Ash



## Reliable results in the laboratory or in production

Designed for ultimate ease-of-use, the NIRS DA1650 allows anyone to do reliable tests without sample preparation.

It includes a built-in computer with a touch-screen interface. Users just place the sample in the cup, push the button and the results are delivered within a minute via the intuitive ISIS-can Nova software.

The solid as a rock unit is IP65 certified withstands dust and moisture that may be encountered when the instrument is used close to the production line.

## Ready for a wide variety of flour types

Because your new NIRS DA1650 Flour analyser comes pre-calibrated, you can get straight down to work with no additional costs.

Global Artificial Neural Network (ANN) calibrations cover a broad variety of flour types and ingredients. Results for key parameters such as protein, moisture and ash are delivered simultaneously in seconds to an accuracy matching reference analysis.

Multiple instruments can easily use the same calibrations without any modifications.

## ISO compliant NIR

With the NIRS DA1650 Flour analyser you can perform rapid near infrared (NIR) analysis secure in the knowledge that you are also following 12099 guidelines for the application of near infrared spectrometry.

A number of carefully considered features contribute. These include the high optical purity of the glass used in the sample cup, a bottom-up light source that avoids any false results due to the formation of moisture on the surface of the sample and an internal reference for reliable checks on instrument performance.

## Future proof NIR

Everything for lasting success in NIR has been thought of including a compatibility to process monitoring and control technology. This gives a straightforward migration path to the FOSS ProFoss in-line process control solutions re-using existing calibration data without any loss of performance.

In-built measurement standards help to control measurement performance ensuring consistency between instruments and making it easy to add any new instruments to the operation.

Another forward-looking feature is the networking support software that avoids any concerns about instrument reliability over time. NIR experts can perform remote instrument monitoring and maintenance via the internet to keep everything running spot on year after year.



# Precision DDA technology for ISO compliant NIR

The NIRS DA1650 is a digital diode array (DDA) based NIR reflectance and transreflectance analyser with a versatile scanning range of 1100-1650 nm. This range makes it the ideal instrument for highly accurate analysis of all standard parameters such as protein, moisture and ash.

The instrument complies ISO 12099 guidelines for the application of near infrared spectrometry. Features contributing to this include:

- The use of borosilicate glass in the sample cup, where a disc is cut from a high quality glass rod and polished for a uniform thickness and finish
- A bottom-up light source that avoids any false results due to the formation of moisture on the surface of the sample
- Internal Wavelength reference protected from environment and temperature variations by a BK7 glass.

The NIRS DA1650 is fully compatible with other FOSS DDA instruments such as the ProFoss In line NIR analyser enabling you to easily leverage data using a straightforward migration path.

## Factory standardised for complete control

Every instrument that leaves the factory is hardware standardised.

Light intensity, bandwidth and wavelength position are all thoroughly controlled in the final stages of production to ensure complete consistency between instruments. Furthermore, once the instrument has been taken into use, internal standards control its performance to ensure no deviations occur over time. This continuous control minimises differences between instruments and makes it simple to add any new instruments to your range.

## Intuitive software

The NIRS DA1650 is operated on ISIScan NOVA software using an integrated and intuitive touchscreen. This user-friendly software supports the latest calibration technologies as well as networking options. In addition to its ready-to-use calibration models, it offers a variety of other features including:

- Automatic database storage of results
- Real-time outlier detection for each constituent
- Product control with control limits and target values
- User-defined fields for tracking sample information
- LIMS compatibility (export only)

- Customer support available on-line
- Easy sample export into WinISI calibration software

## Online remote instrument management

FOSS Mosaic networking software allows you to connect your NIRS DA1650 instrument to the internet for remote instrument management. Once connected a FOSS NIR specialist, or your in-house team, can monitor and optimise the performance of your instruments online without interrupting routine operations. With Mosaic you can manage all settings on your instrument(s) and carry out tasks such as:

- Instrument and calibration surveillance
- Instrument diagnostics for QC management
- Slope and intercept adjustment
- Unit surveillance
- Calibration updates and optimisation
- Online technical support
- Central reporting
- Protection of valuable data and calibrations

Mosaic software also allows the user to remotely control one or several instruments locally (LAN) without an internet connection.





*The power of networking: instruments can be monitored remotely by experts in NIR, calibration data can be collected and transferred, and calibration updates/instrument adjustments can be made without the local user having to take any action.*

## WinISI and networking software

You can develop your own calibrations for NIRS DA1650 using WinISI calibration software. This software can be integrated with Mosaic networking software to make it simple to transfer your calibrations from a central location to your instruments. Mosaic can also be used to collect and send sample data from your instrument for calibration development.

## Global and regional calibrations

NIRS DA1650 is pre-calibrated with global calibrations for many types of flour. FOSS global calibrations are based on extensive samples from different regions and countries, collected over the years. This means they are robust, low maintenance and easy to use already from day one. Full calibration support is available using our remote networking software, Mosaic.

- On site preventive maintenance visits
- Preventive maintenance parts
- Software updates
- Remote instrument surveillance
- Online and offline calibration support
- Discount on customised calibration development service
- Discount on additional service visits
- 24/7 hotline phone support
- Self maintenance training and video on demand support
- Priority support response

## Parameters: Protein, Moisture and Ash.

DDA technology with wavelengths from 1100-1650 nm is most suitable for these basic parameters. For more flexibility in choice of parameters we recommend the NIRS DS2500 with its full wavelength range and increased performance.

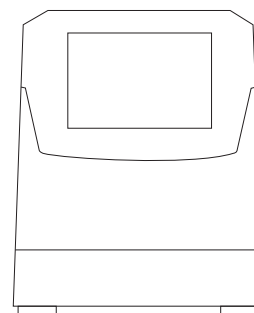
## Part of a complete high performing solution

Whether you are new to NIR or an experienced user, FOSS offers a complete and customised support program for your NIRS DA 1650 instrument.

## Key features

- ISO compliant NIR analysis
- Rapid analysis of protein, moisture and ash
- Low maintenance
- Robust design
- Factory standardised
- Compatible with other FOSS NIR solutions
- Ready to use global ANN calibrations for a variety of flour types
- Remotely supported through Mosaic network software
- Built-in computer with intuitive touchscreen interface

## Specifications



Feature	Specification
Dimensions (W x D x H)	230 x 530 x 280 mm
Weight	16 kg
Degree of protection	IP 65 (Dust and water proof)
Measurement mode	Reflectance or Transflectance (for liquid samples)
Wavelength range	1100 - 1650 nm
Detector	256 pixel InGaAs diode array
Optical bandwidth	10.44 ±0.5 nm
Spectral resolution	0.5 nm/data point
Number of data points	1100
Absorbance range	Up to 2 AU
Analysis time	<1 minute*
Wavelength accuracy	<0.5 nm
Wavelength precision	<0.05 nm (standard deviation)
Wavelength temperature stability	<0.02 nm/ °C

\*) Adjustable

# Installation requirements

NIRST™ DA1650	
Voltage supply	100 - 240 V AC *), frequency 50 - 60 Hz, Class 1, protective earth
Ambient temperature	5 - 40°C
Storage temperature	-20°C to 70°C
Ambient humidity	< 93% RH
Mechanical environment	Stationary during use
EMC environment	Laboratory use, Industry requirements
*) Mains supply voltage fluctuations not exceeding $\pm 10\%$ of the rated voltage.	

## Legal Data

The equipment is CE labelled and complies with the following directives:

- EMC (ElectroMagnetic Compatibility) Directive 2004/108/EC
- LVD (Low Voltage Directive) 2006/95/EC
- Packing and Waste Directive 94/62/EC
- RoHS Directive 2002/95/EC
- WEEE Directive 2002/96/EC
- REACH Directive 1907/2006/EC

## PC Requirements

Built-in touch screen computer included.

Contact your local FOSS representative for information.

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