



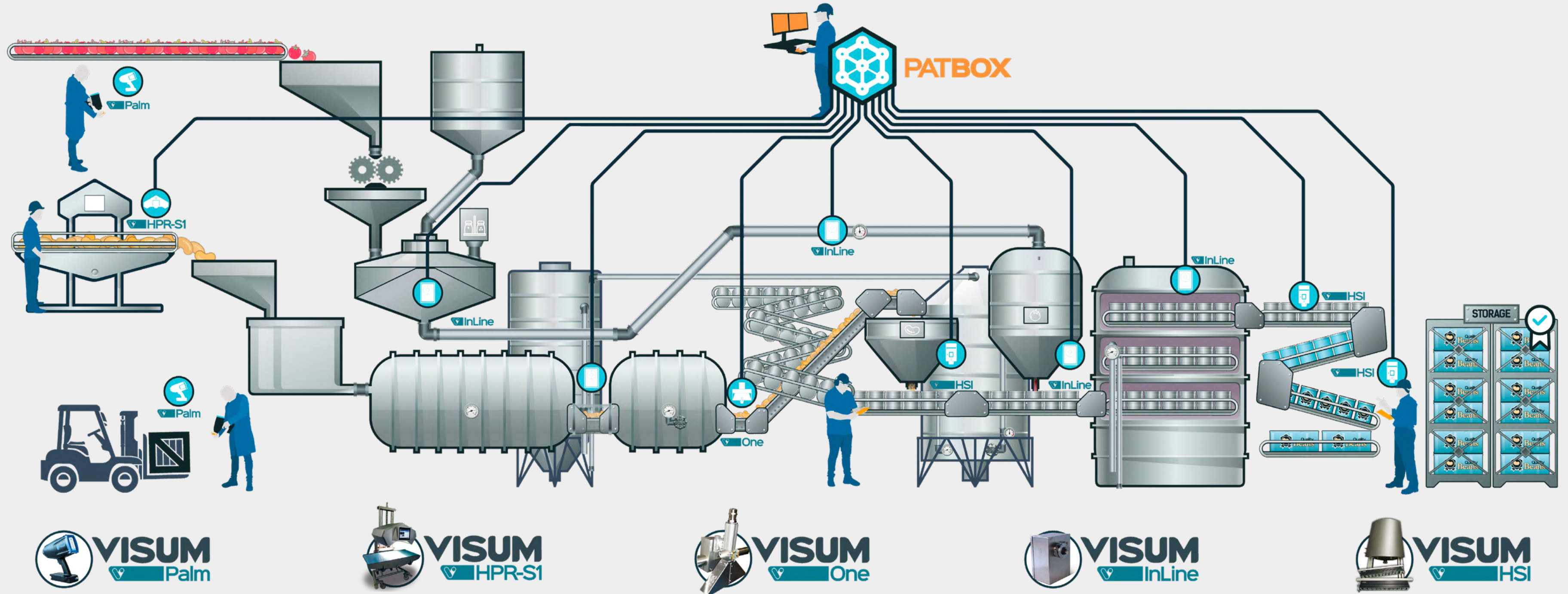
VISUM

Industry 4.0 Process &
Quality Control Systems

VISUM

VISUM. Non-destructive analytical devices for in-line inspection of critical process parameters (CPPs).

- ✓ NIR Analysers integrated in your production line.
- ✓ Real-time monitoring of multiple quality parameters
- ✓ Product standardisation
- ✓ Fraud control
- ✓ Higher quality end product
- ✓ Lead time reduction
- ✓ A more efficient and automated quality control process
- ✓ Higher performance
- ✓ Reduction of production costs
- ✓ Brand reputation protection: Lower incidences of claims



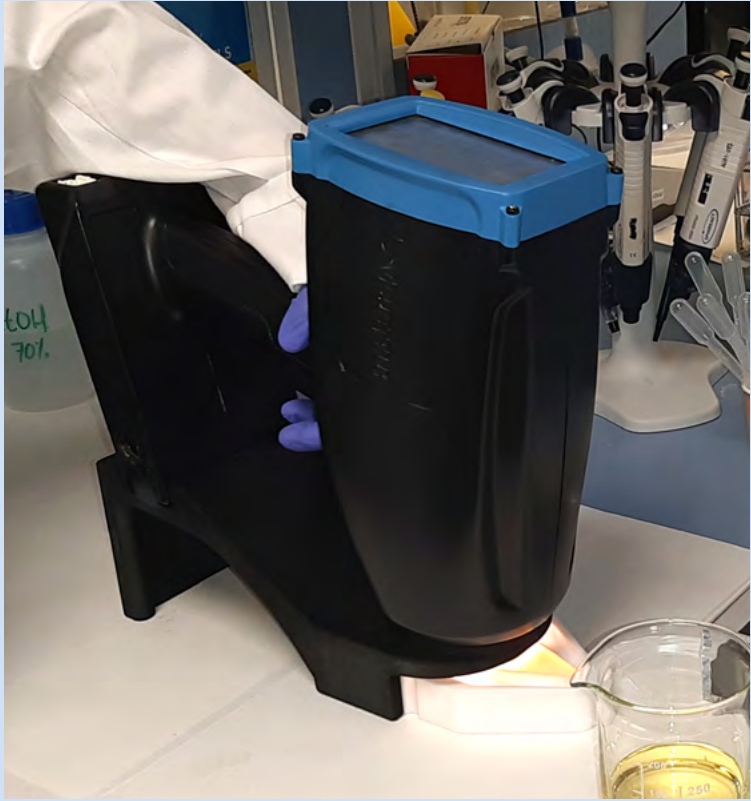
VISUM Palm

Portable NIR analyser for real-time chemical composition determination. Handy but robust and designed for industrial environments, VISUM Palm also eliminates probes from the process stream for background collection or qualification.



DESIGNED FOR:

- Analysis of incoming raw material for degradation, adulteration and measure key quality parameters of your ingredients.
- At-line use to control key parameters for product standardisation.
- Comfortable use of a multiparameter, portable and flexible monitoring device for product analysis at different critical points along the production line.



SECTORS	
Food	<ul style="list-style-type: none">· Fat, moisture and protein content in minced meat· Moisture and protein content in powders such as flour or cocoa.· Particle size determination· Total acidity and polar compounds concentration in frying oil· Routine quality control of edible oils by-products: water-in-oil, water-in-marc, oil-in-marc.
Pharma	<ul style="list-style-type: none">· Identification of APIs and excipients· Particle size determination· Pellet coating end-point determination· Drying and blending end-point determination· Content uniformity control in solid and liquid forms
Other Industries	<ul style="list-style-type: none">· Polymers identification· SWIR-dye-inked black polymers classification· Ethanol & sugar concentration monitoring during the fermentation process

VISUM InLine

Industrial NIR analyser for real-time and continuous chemical composition monitoring adapted to diverse geometries and unit operations (conveyor belts, pipes, tank, etc.) and unit process machinery (e.g. blenders).



DESIGNED FOR:

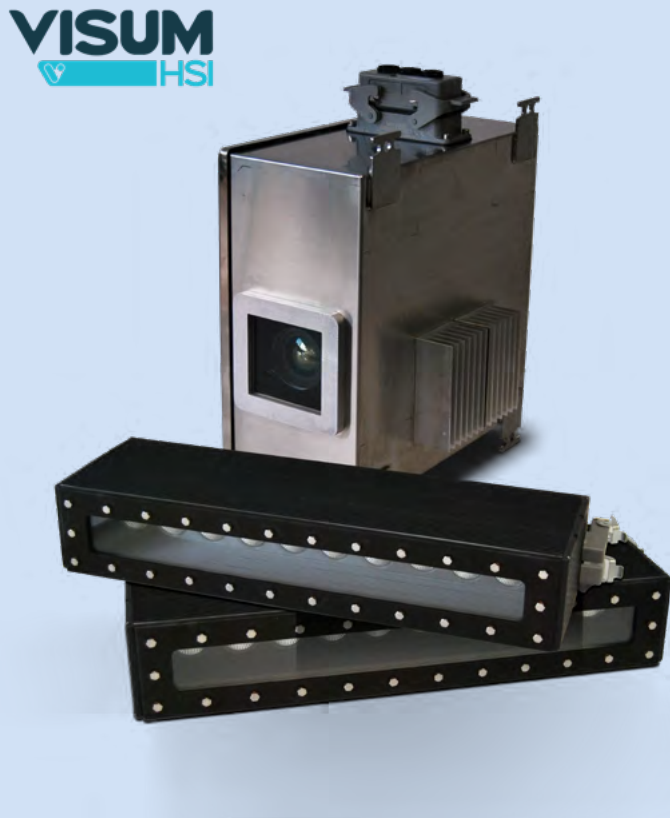
- Continuous monitoring of Quality Attributes (CQAs) ensuring the measurement of all product units and guaranteeing their standardisation.
- Real-time and simultaneous measurement of Critical Control Parameters (CCPs) for keeping the production process under control.
- Anomaly Detection: Early warning in the event of unexpected changes in the product's composition.



SECTORS	
Food	<ul style="list-style-type: none">· Fraud detection· Fat, moisture and protein content· Water and protein content monitoring in milk· Routine quality control of edible oils· Total acidity and polar compounds concentration in frying oil· Routine quality control of edible oils by-products: water-in-oil, water-in-marc, oil-in-marc.
Pharma	<ul style="list-style-type: none">· API content uniformity· Blending and drying end-point determination
Other Industries	<ul style="list-style-type: none">· Polymer identification· Black plastic coated with an inorganic compound classification· Ethanol & sugar concentration monitoring during fermentation process

VISUM HSI

Industrial in-line NIR HyperSpectral Imaging (HSI) analyzer that can be integrated into any type of production line for real-time monitoring of product quality when the spatial information (shape and position) is relevant, extending artificial vision to chemical sight.



DESIGNED FOR:

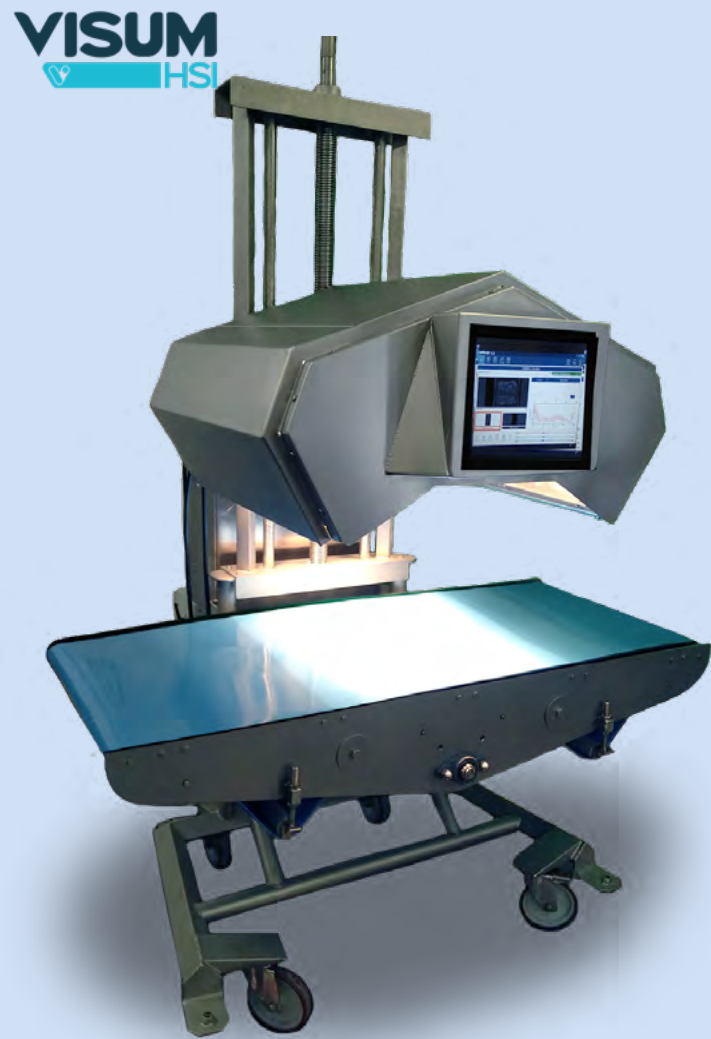
- Non-invasive installation thanks to a flexible and customisable design, adapting the technology to the production line.
- Continuous monitoring of Quality Attributes ensuring the measurement of all product units and guaranteeing their standardisation.
- Fast and efficient detection of foreign bodies on surfaces. Capable of detecting materials such as plastics, cardboard or cartilage.
- In-line monitoring of product distribution to ensure homogeneity and the desired amount of ingredients in each product unit.
- Anomaly Detection: Early warning in the event of unexpected changes in the product's composition.



SECTORS	
Food	<ul style="list-style-type: none">· Fat, protein and moisture content monitoring in minced and trimmed meat· Detection of bones in chicken breast slices· Fraud detection· Moisture and protein content in powders such as flour or cocoa· Fat content in pastry products· Detection of worms in peach pieces· Detection of Surface-borne foreign bodies in pizza· Topping uniformity control in pizzas packaging lines
Pharma	<ul style="list-style-type: none">· Solid forms content homogeneity· API content uniformity
Other Industries	<ul style="list-style-type: none">· Packaging quality control: Point-wise film thickness· Packaging quality control: Point-wise film micro texture· Detection of rubber pieces in wood chips (chipboards manufacturing)

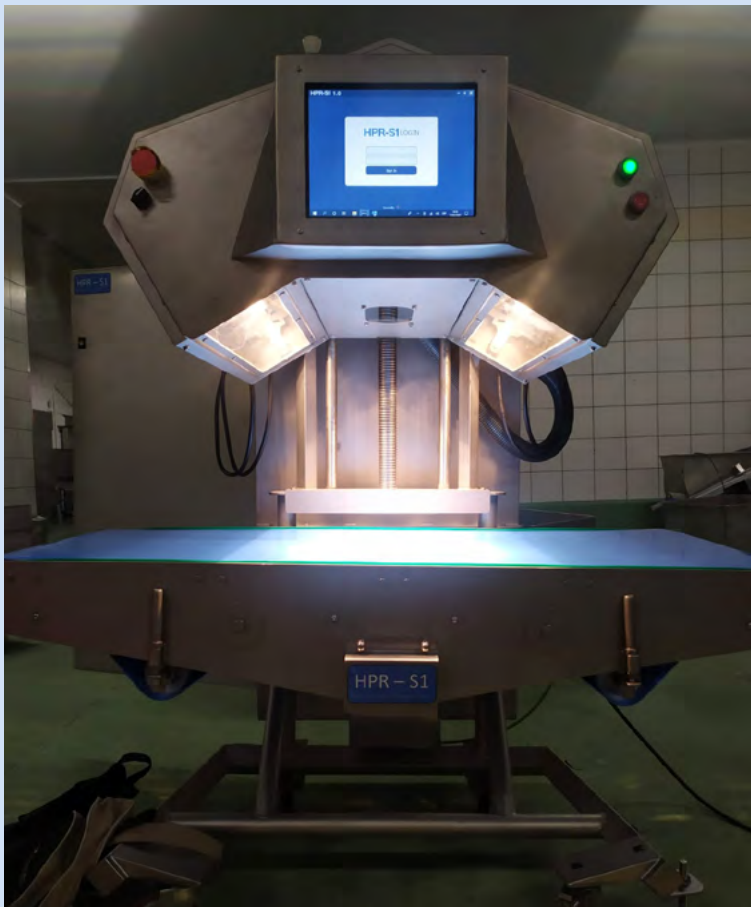
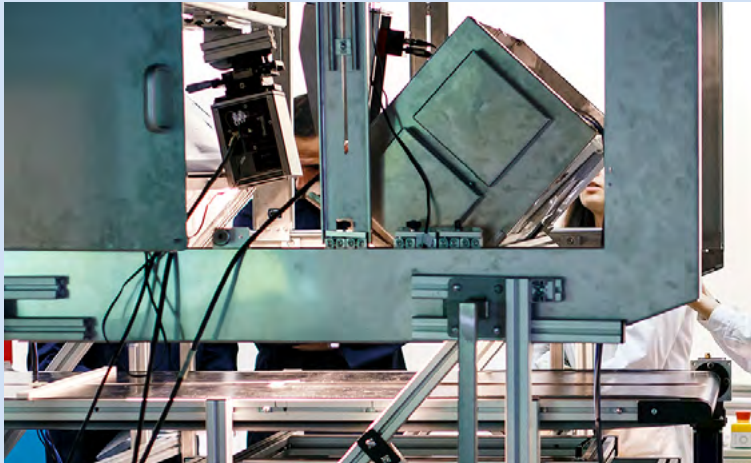
VISUM HPR-S1

Portable NIR HyperSpectral Imaging (HSI) Analyser designed to work in industrial and aggressive environments where product information about chemical composition and spatial information is required at different locations in the factory.



DESIGNED TO:

- Easy and fast installation in production lines. Fast connectivity.
- Continuous analysis of fat, protein and moisture content in minced meat and trimmings.
- Detection of foreign bodies (plastics, cardboard, wood, metals, etc.) on surfaces.
- Adulteration detection.
- Anomaly Detection: Early warning in the event of unexpected changes in the product's composition that cannot be detected by dedicated chemical analysis

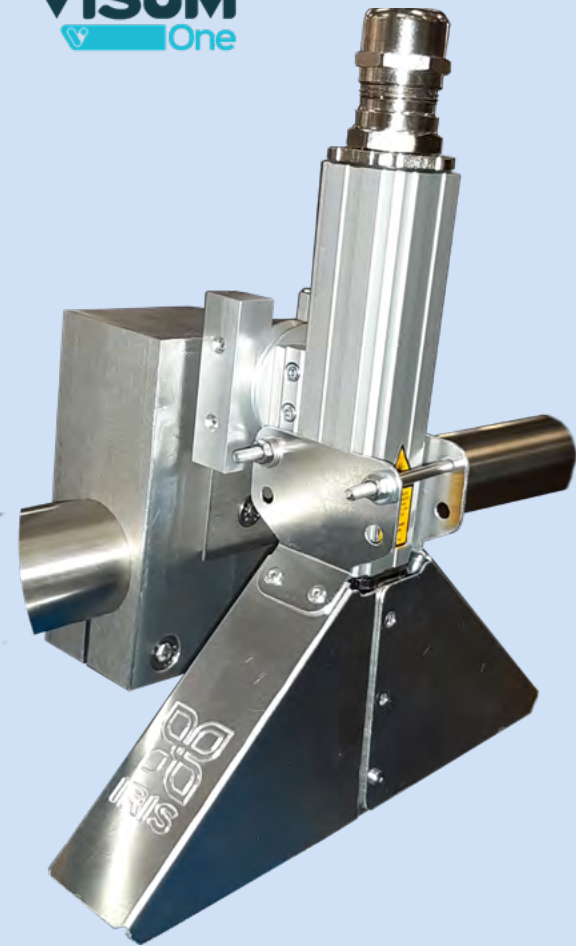


VISUM One

Robust, accurate and non-invasive in-line vision system for continuous foreign matter detection in bakery and pastry rolled doughs.

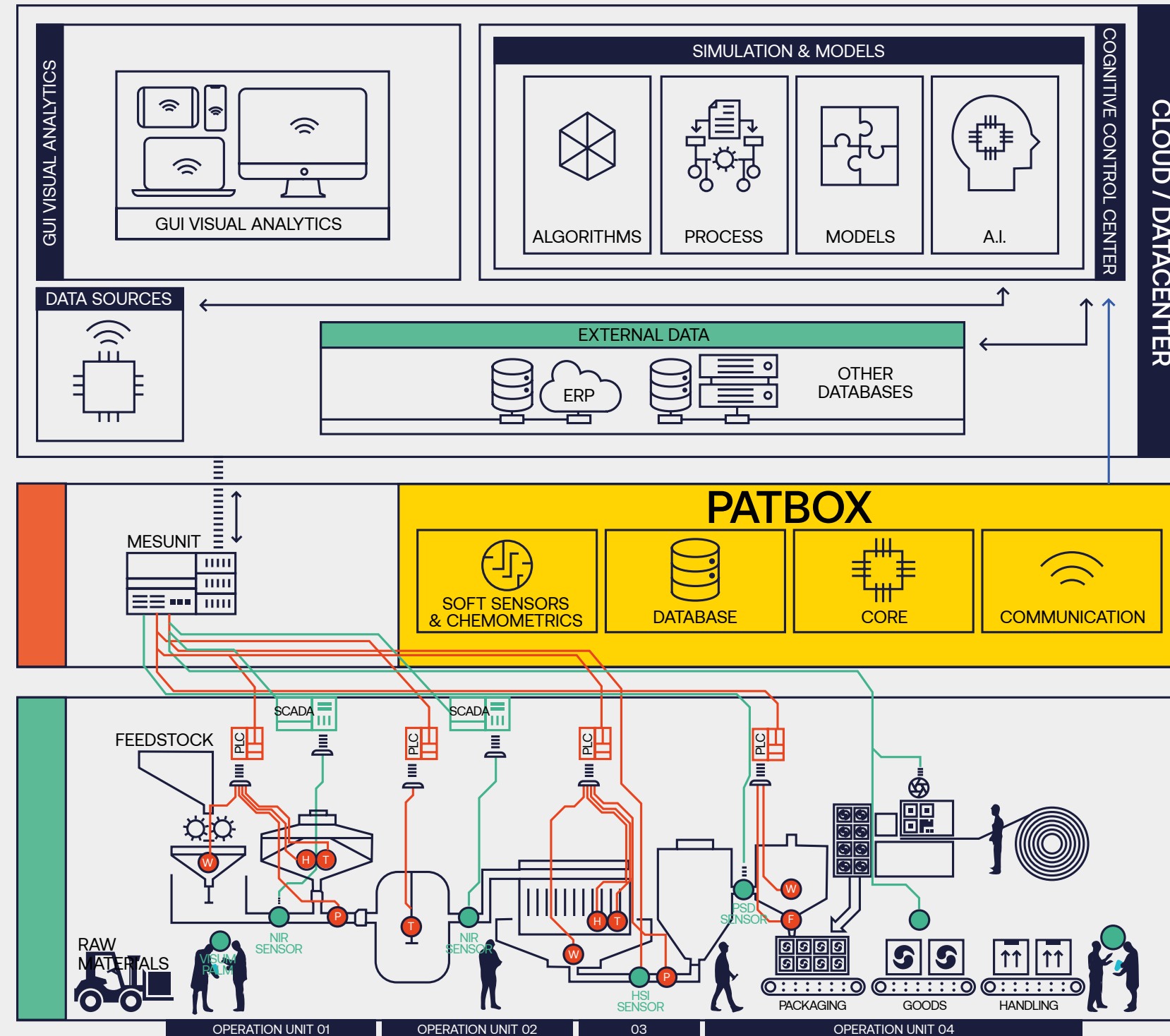
Safe for both the product and the operator, adaptable to any type of line, geometry, and speed.

VISUM
One



MAIN FEATURES:

- Continuous analysis of 100% of the sample.
- Detection of opaque plastics, coloured films, zip ties, wood and cardboard among other foreign bodies.
- Based on a non-invasive technology. Harmless for the product and for operators.



- COMPLEX SENSOR
- NIR
- HSI
- PSD

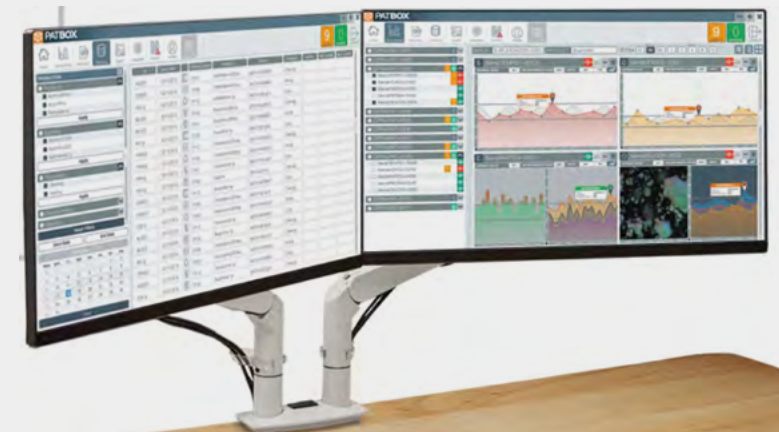
- SIMPLE SENSOR
- P PRESSION
- F FLOW
- T TEMPERATURE
- H HUMIDITY
- W WEIGHT

PATBOX

PATBox is a Process Analytical Technology (PAT) system management software that provides Machine Learning and Chemometrics tools for complex process control, with the ability to interpret and connect metadata in an intelligent way.

PATBox features communication drivers for the main PAT sensors on the market, simplifying integration in the plant and the consolidation of real-time monitoring information to ensure that the processes are running according to the correct specifications and guidelines for optimal operation of the production plant.

PATBox connectivity with ERP, MES and SCADA systems makes it possible to elevate the chain of communication directly to plant managers and directors.



Our service

Turnkey solutions

- | | |
|---|--|
| → Analysis of the customer's quality control needs and co-definition of specifications and scope. | → Exploratory tests in our facilities. |
| → Development of custom chemometric predictive models for greater accuracy and robustness, compared to generic libraries. | → Maximum flexibility for adapting the device to meet specific requirements. |
| → Integration service (including compatibility with existing plant data management systems). | → On-site validation and training. |
| → Maintenance and after-sales service during the entire life cycle of the device. | |



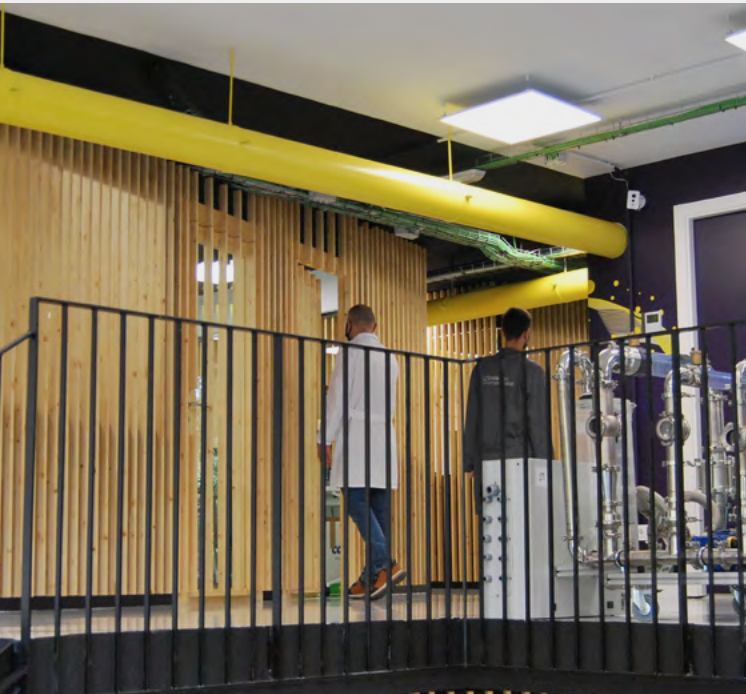
About Us

IRIS is a Deep-Tech Engineering company specialised in Real Time Monitoring and Industrial Artificial Intelligence Solutions for driving improved process quality and efficiency in the Food, Chemical, Pharmaceutical and other Process Industries.

Our value focus is centred on Industrial Digital Transformation to bring companies into the Industry 4.0 Revolution.

We combine Photonics and ICT to develop turnkey NIR analysers and PAT (Process Analytical Technologies) solutions that enable our customers to improve their quality control systems and optimize their production processes.

Our team of multidisciplinary experts combines programmers, engineers, chemists, physicists, mathematicians, biologists and technologists with proven experience in diverse fields of science and technology.



Testimonials

“ At Almirall we are committed to quality, innovation and continuous improvement of process effectiveness and efficiency. For this reason, last year we installed the new VISUM Palm analyser in our quality control laboratory. In our case, it is used to determine different quality parameters in various products on line.

Thanks to the excellent communication between IRIS Technology Solutions and Almirall, the development process of the Machine Learning models and the qualification of the device for our technical requirements has been smooth and agile. At Almirall we know that this is only the first step in a successful journey together with IRIS towards the implementation of other PAT solutions, within the framework of our commitment to the Industry 4.0 paradigm.”



Almirall



“The use of the VISUM Palm represents a revolution in terms of keeping the quality of the processes under control. It provides us with reliable, fast and economic information about the total acidity and the content of polar compounds in the frying oil of the production line, allowing us to make the most of this oil, always within the high quality standards we impose on ourselves. In turn, we can obtain the percentage of moisture/fat in the product once it has been fried. By saving on laborious lab work, the staff can concentrate on higher value-added tasks, so the ROI is clear.”

EUROPASTRY

Europastry S.A.

“Under the framework of the EU funded H2020 project, Agrimax, in Nofima we have been testing the feasibility of selected rapid and non-destructive sensors for monitoring and controlling different extraction processes. Testing the dry matter content in cutin paste monitoring, an expensive and high-resolution lab instrument from a leading brand has been compared with the hand-held VISUM Palm, yielding strikingly similar results. While both systems were capable of performing the analysis with the same level of accuracy, the VISUM PALM offers the added advantage of measuring on a quite small spot, thereby enabling high-quality spectra to also be obtained from hard and bulk samples.”

Nofima

NOFIMA



“VISUM Palm is a solid, portable, easy to use instrument that can be used for many different purposes. We and Professor Elliott’s team have been working in the area of food authenticity and vegetable oil specification for several years and are looking for opportunities to make the analysis fast, portable and cost-effective. With the right application the VisumPalm ticks all the boxes.”

QUEEN'S UNIVERSITY BELFAST

Queen University de Belfast

“Thanks to the good work between the IRIS team and GESCASER, we have been able to get a great benefit from the end-to-end solutions development they have done for us with CTC+, a software capable of providing very detailed information of the quality of stored grain as well as adding a prediction system, based on artificial intelligence tools, which learns from previous experiences in the silo, improving the efficiency of the ventilation system. For GESCASER this software has been a qualitative leap that our customers have appreciated.”

Gescaser

Technical Specifications

03. VISUM PALM

SENSOR	InGaAs photodiode array
SPECTRAL RANGE	900 – 1700 nm
TYPICAL SINGLE SPECTRUM ACQUISITION TIME	10 ms
SPECTRAL RESOLUTION	3 nm
ACQUISITION GEOMETRY	Diffuse reflectance, interactance and trasflectance (with a dedicated holder)
WEIGHT	1.9 kg
INGRESS PROTECTION	IP63
POWER SUPPLY FOR CHARGING THE BATTERY IN THE DOCK STATION	230 VAC (1-phase). Consumption < 100 W
LIGHT SOURCE LIFETIME	1 year (standard use)
BUILT-IN COMPUTER	A7 Dual-Core ARM®
BASIC CONNECTIVITY	Ethernet (TCP/IP)
USER INTERFACE	Built-in 5.3-inch resistive touchscreen and manually operated trigger for acquiring the spectra

02. VISUM INLINE

SENSOR	InGaAs photodiode array
SPECTRAL RANGE	900 – 1700 nm
TYPICAL SINGLE SPECTRUM ACQUISITION TIME	10 ms
SPECTRAL RESOLUTION	3 nm
ACQUISITION GEOMETRY	Diffuse reflectance, interactance and tras ectance (with a dedicated holder)
WEIGHT	14 kg
DIMENSIONS	325 x 243 x 240 mm3
INGRESS PROTECTION	IP65
POWER SUPPLY FOR CHARGING THE BATTERY IN THE DOCK STATION	230 VAC (1-phase). Consumption < 100 W
MATERIAL (ENCLOSURE)	AISI 304
LIGHT SOURCE LIFETIME	1 year (standard use)
BUILT-IN COMPUTER	A7 Dual-Core ARM®
BASIC CONNECTIVITY	Ethernet (TCP/IP)
USER INTERFACE	External-PC-based (for con guration and service tasks)
DATA OUTPUT	Pro bus DP RS485
OPERATION MODE	Slave / Continuous
CONNECTION TO THE PROCESS	Insertion flange for Varinline (R) Type N Housing from OD 1 1/2” to OD 3” (DN40 to DN80) pipe diameter
MAX PRESSURE ON THE WINDOW (PROCESS SIDE)	16 bar
MATERIALS (INTERFACE WITH THE PROCESS)	Borosilicate glass and AISI 316L steel

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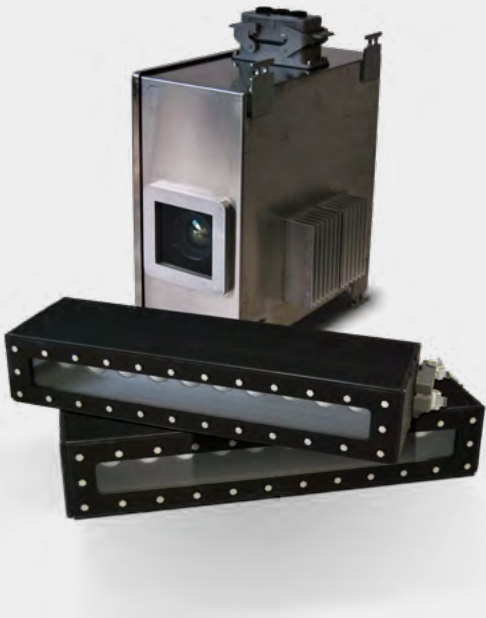
2.



03. VISUM HSI

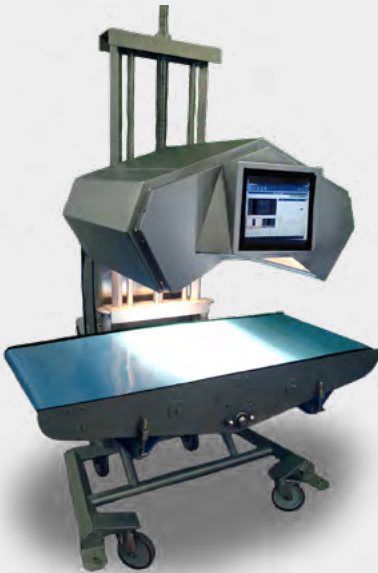
ACQUISITION MODE	Push-broom (the field-of-view is scanned line by line)
SPECTRAL RANGE	900 – 1700 nm
NUMBER OF SPECTRAL CHANNELS	256
NUMBER OF PIXELS/LINE	320
ACQUISITION SPEED	>300 lines/s
ACQUISITION GEOMETRY	Diffuse reflectance

VIUSM HSI is delivered as a turnkey solution totally integrated in the line. It comprises a dedicated lighting system, IP66 housing, an industrial-grade high-speed computer and a proprietary software for processing the hypercubes according to bespoke chemometric models



04. VISUM HPR-SI

SENSOR	CMOS
SPEED	60m/min
DIMENSIONS	1.8m x 1.9m x 1m
CAPACITY	30 ton/hour
WEIGHT	200Kg
CONSUMPTION	2.000W
IP PROTECTION	IP67
CONFIGURATIONS	Conveyors 400mm, 500mm & 600mm Witdh
PC	A7 Dual-Core ARM
USER INTERFACE	Touchscreen 15” Pro bus DP RS485, Modbus
DATA OUTPUT	Ethernet (TCP/IP)



04. VISUM ONE

DIMENSIONS*	(380 + 300 + 150)
POWER SUPPLY	24 VDC, 250 W
IP	IP66
RESOLUTION OF THE SENSOR	320 x 100 mm
MINIMUM DETECTABLE SIZE	0,5 mm
DATA OUTPUT	Ethernet Connectivity – Giga E
USER INTERFACE	Intuitive user interface
PC	Core I5, 8GB RAM, 128 GB HDD





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