OAL Connected

Automate your food business with OAL

Welcome to OAL

We're a technology and system integration business based in Peterborough, UK. For over 30 years, we've been providing leading-edge solutions to help food companies automate their production and packaging processes. Our flagship OAL Connected system protects over 1,400 packaging lines, ensuring the correct date code and packaging are applied to every pack.

We understand that change can be challenging, which is why we're committed to making automation as easy as possible for our customers. From the initial stages of a project, we collaborate closely with our clients and offer expert advice to build a specification that ensures the solutions is both effective and easy to use. We design our solutions to make the adoption and training process as simple as possible, so our customers can get the most out of their automation investment. We value feedback and continuously strive to maintain our high standards by requesting it after every support ticket.

We collaborate with leading technology and academic providers to create comprehensive solutions, including Cognex for high-quality vision systems and the University of Lincoln for cutting-edge research and skills development. We're an Inductive Automation Gold partner, building SCADA and MES applications on their leading Industry 4.0 I industrial platform.

The food industry is undergoing a significant shift towards digitalisation and automation to reduce costs and improve efficiency. We believe that every food manufacturer can benefit from automation, regardless of their stage in the journey. Our mission is to help great food businesses achieve fantastic results by providing innovative automation solutions that ensure right first time, highly productive and efficient manufacturing.

How complex is my business

Signs of complexity

Manufacturing over 500 SKUs

Management of multiple allergen groups

Lots of changeovers and short production runs

Complex SKUs with multiple product and packaging elements

Diverse mix of customers with different requirements

High numbers of operators on the line

OAL

Trends & Challenges

100% Quality Inspection

Most retailers require 100% quality inspections and expect a system to ensure "right first time". Manufacturers are increasingly reliant on automated quality checks including vision to overcome human errors. Reliance on automated checks including vision is increasing. The reliance is growing as increased automation, leads to fewer eyes seeing and checking the product.

Retailer & Customer Trust

The consumer demand for transparency is filtering down the supply chain, setting high expectations for retailer and manufacturer relations. From quality reports to energy consumption, we can expect demand for real-time data to steadily increase, which is then shared with stakeholders as part of risk management strategies. For instance, "own label" traceability will also require energy consumption and source data at a batch level as part of net zero programmes.

Contextual Data

As automation and digitalisation increase, so too does the amount of data produced. The seamless integration of all business systems and devices will therefore provide contextual data and insights for better decision-making. If data is no longer kept in silos, less manual effort is required to match different datasets, such as energy or checkweigher output with product data. This also enables you to create a single source of truth for your business. With this, the business can be run from a single dashboard, using real-time and historical data from all parts of your business.

Skills Shortages

Most food companies are finding it difficult to attract and retain skilled staff. Potential employees are looking for better jobs and experience. Furthermore, training and onboarding new employees takes up valuable resources. Moving to digital solutions can help address these issues, by providing staff with valuable digital skills, reducing the training time required, and enabling greater output with the same number of staff by removing manual activities.

Case Study – Worldwide Fruit

Worldwide Fruit is a growing £200+ million turnover fruit marketing and distribution business. Quality is critical to their customers, and they wanted a solution that could scale across their complex operations, which handles thousands of SKUs from over 1,000 global growers. OAL has helped Worldwide Fruit automate to ensure all its products have the right date code, right packaging and country of origin. By integrating OAL Connected and APRIL Eye, Worldwide Fruit has been able to significantly improve their quality control processes and reduce the time needed for quality control checks. At the same time, a substantial amount of paperwork has been removed, helping them surpass their sustainability goals.

Read more at https://www.oalgroup.com/case-study/worldwide-fruit

"The team at OAL are easy to work with, working together we have implemented a robust automated label and date code verification system. The 24/7 support is quick, friendly, and efficient!"

— Fran McNally, Quality Manager, Worldwide Fruit

WORLDWIDE fruit

OAL Connected

Payback

Introducing a new system is a major commitment. Therefore, it's important to be certain that the changes will provide the expected benefits. OAL Connected can help deliver the return on investment desired by increasing your turnover through enhanced performance, quality, and customer trust, as well as improved sustainability.

Increase Quality

Achieving the 100% quality that more and more retailers demand is much easier with a system like OAL Connected. Costly errors and mistakes can be prevented by:

- Providing 100% packaging verification of all labels, packs, seals, date codes, country of origin (COO), and growers with visual inspections.
- Ensuring complete code of practice compliance through automated systems.
- Preventing rework and downtime by identifying issues immediately before they escalate.

Build Customer Trust

Packaging errors can lead to fines or even a loss of reputation with customers. OAL Connected can assist with preventing this and help you win more business by:

- Avoiding preventable mistakes caused by human error and paper-based processes
- Providing defendable traceability even for complex operations – such as mixed packs or multiple COO – as all inspections are automatically logged and saved within the OAL Connected system
- Demonstrating excellence during customer audits with a thorough and verifiable audit trail

Improve Performance

Moving to an automated, digital system like OAL Connected helps connect all your devices and provides a single source of truth for your business. In turn, this helps improve your business' performance by:

- Driving all operations from your ERP system (the single source of truth)
- Empowering the shopfloor with integrated production data and real-time factory performance data in Power BI for better business insights and targeted improvements where needed.
- Avoiding nuisance stops on the line by setting the desired number of "no reads" before triggering an investigation.
- Saving time every changeover, thereby freeing up operators to conduct other value-added activities
- Reducing the operators required to run a line, so they can be relocated to other valuable roles in the factory.
- Reducing training requirements, such as for setting up multiple printers and labellers, as everything is run from one central system.

Increase Sustainability

Reducing our environmental impact has become increasingly important. Digital solutions such as OAL Connected can help with this goal by:

- Providing actionable data regarding indicators such as energy usage, which can then be easily compared per site or per product
- Reducing the amount of paper-based processes, which consume natural resources

"Without a doubt I would recommend OAL to other manufacturers […] this system is the failsafe"

— Sarah McGeehan, Group Technical Manager, Pioneer Foods (Pepsico)

PIONEER
FOODS

OAL

Digital Transformation
OAL Product Database & ERP Integration

Digitalise your operations with our comprehensive product database. Populated with master product and customer data, it enables you to check any characteristic of your product which has been recorded in the OAL database.
The first step is to convert all paper-based information into a digital format – the digitisation of your current data. From then on, every check and action in the system is automatically recorded. These can then be easily viewed in our reporting module.

There's also no need to waste time on the double entry of data into multiple systems. The OAL database is SQL-based, which allows data exchange with higher level systems, like ERP, via shared tables or direct API so it can access and share data.

The solution can also be extended to include the automated set-up of checkweighers, metal detectors and X-ray equipment, with corresponding data collection and reporting available to export.

Highlights

- Option for standalone integrated database
- Integrate with your existing ERP, MES, Planning and WMS systems to create a single source of truth.
- Two user sign-off for database changes
- Peace of mind that the data brought into the OAL database has been validated
- Always up to date as any new products introduced are automatically added to the OAL database
- Requires minimum maintenance
- Comprehensive SKU management including concessions, user hierarchy, line configuration, date code settings, version control, allergens variable field (country of origin, grower)

TAKE CONTROL OF YOUR ENTIRE LINE

OAL Connected
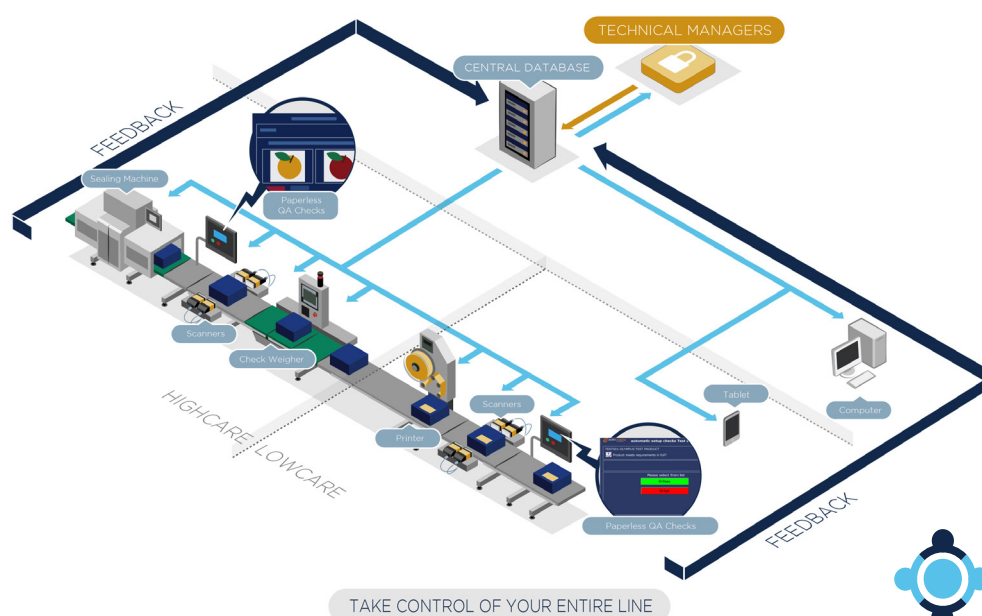
Eliminate Date Code Errors
Printer Control & Verification

Prevent user input errors on printers by automating the set-up and monitoring of your printers. The OAL system automatically sets up the printers (both primary and secondary) to print the right date code for the job based on the information in the product database. With operators no longer setting up printers, human error is eliminated, drastically reducing the risk of product recalls due to label and date code issues. Staff can then be reassigned to other activities. The system is easy to implement because it's brand agnostic – any printer can be used with the OAL system. Thanks to our in-house team of experienced application engineers, we can even write a driver for you if you want to use a printer from the 20th century.

There's also no need to worry about potential faults in the system impacting operations. The in-built fault and alarm detection means that if the printer enters a fault state, the OAL system will detect it, stop the production line, and force a redownload of date code information.

Highlights.
- Simple, single-point, automated set-up of all required printers (primary and secondary)
- Saves times every changeover and prevents human input errors on printers by automating printer setup and monitoring
- Automatic fault and alarm detection before issues can escalate
- Staff can be reallocated to other value-adding activities

What about date code concessions?
a) The system can be set up to allow operators to select a date code within a minimum/maximum period.
b) The system can set date codes based on P+ or depot days
c) The system can be set to avoid printing certain dates, like Christmas Day!

The OAL system controls the printers so your operators don't need to set the printers up

OAL

Ensure the Right Packaging
Pack Verification

Eliminate packaging errors in your food business by verifying each element to the currently running job. With OAL's inline 1D or 2D barcode scanner, every pack is scanned and a picture is taken for future review purposes if needed. This simple addition provides complete confidence that the correct primary and secondary packaging and labels are applied to your products.

The system will scan the back web, top and lid marriage, and even a second printer. You can easily ensure that the correct packaging and artwork is being used, even for exceptions such as promotional products or where there have been changes to allergens. As a result, downtime and rework are significantly reduced, as any errors are detected straight away. In addition, you can decide how many "no reads" to allow before the line stops for investigation, thereby avoiding nuisance stops.

Highlights.

- Verify every packaging element with inline 1D or 2D barcode scanning
- 100% confidence that the correct primary and secondary packaging, labels, and artwork version are applied to products
- Pictures taken of all scanned packs for complete traceability
- Reduced downtime and rework caused by packaging errors
- Complete control over the number of "no reads" for optimal productivity

FAQ

1. Can the system be integrated into my current production line?
   a) The scanner can be quickly and easily installed onto any current installation.
2. Does the scanner require the use of the OAL Product Database?
   b) Yes, the scanner works together with the Product Database to verify the packaging, labels, and artwork, as this information is stored in the database.

Prevent Product Recalls
Product Verification

Even if the right date code is printed on the packaging, there can be concerns as to whether it is the right product or if the right raw materials have been used. Eliminate uncertainty completely with OAL Connected for complete peace of mind. The system has various ways to ensure the right product is being produced, from simple human-led validation checks to fully integrated data sharing with ERP systems, SCADA and recipe controls, and even vision-based checks of the physical product.

The key is our product database, which knows the products being produced so the required checks can be tailored to the risk.

Quality checks use the paperless quality jobs linked to the job to positively verify the right raw materials have been brought to the packaging line.

If you already have an ERP system, this can be linked to the OAL Product Database to verify which materials have been used with your existing traceability system. For instance, a unique raw material ID is held in your ERP system. When you start a job on the packaging line, the operator will need to scan the raw material ID to the line. The OAL system will check the raw material is right for the job.

Similarly, if you use SCADA and recipe controls, the OAL system can be linked to them to verify the batch to the packaging line.

If more confidence is required, visual inspections will identify what the product is and cross-reference it to the database.
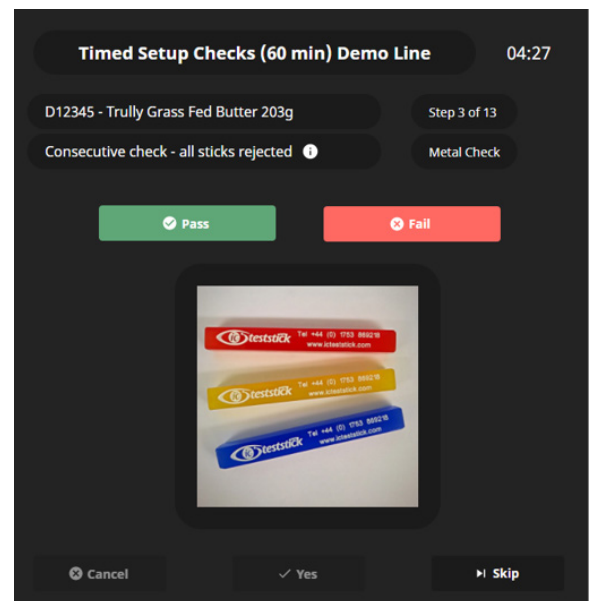
Highlights.

- Simple, single-point, automated set-up of all required printers (primary and secondary)
- Saves times every changeover and prevents human input errors on printers by automating printer setup and monitoring
- Automatic fault and alarm detection before issues can escalate
- Staff can be reallocated to other value-adding activities

Automate Date Code Checks
APRIL Eye Print Verification

Close the loop and verify the date code printed on the pack with the most powerful AI vision system in the world – OAL's APRIL Eye. The ability to verify the date code printed on the pack is highly valuable with fully automated packaging lines with no human visual inspection. Generally, humans are good at spotting missing or blurred codes. If no human will see a pack before it is in the hands of consumers, inspection is critical to ensuring code quality.

APRIL Eye can be used either as a hand scanner or as an inline verification system. For hand scanning, the process is as easy as taking a picture of the date code using the hand scanner linked to the line terminal. The AE software will analyse the image, confirm the date code and verify against the running job. This check can be undertaken during job start-up checks and ongoing timed checks, effectively sampling print quality every 10 minutes.

For inline verification, an additional camera is added to the packaging line to take a picture of every date code. The AE software will analyse the image, confirm the date code and verify against the running job. If the date code is in the same location as the 2D code, the same scanner can be used to both scan the 2D code for packaging verification and take a picture of the date code for verification.

If an error is detected, the line can stop or a signal sent to a reject mechanism, preventing any errors before they can escalate into costly mistakes.

Why AI?

AI enhances the capabilities of vision systems, making them smarter, more flexible and constantly improving.

Improve Quality Reporting
Paperless Quality Checks

A simple way to significantly improve quality reporting is to switch to automated, paperless quality checks. Whilst there are many paperless systems available, the OAL system has several advantages. Namely, as the OAL Connected system needs to be in use for the job to run, all data collected can be intelligently linked to the job. This means you'll have all the records you need at the touch of a button for seamless retailer audits and compliance reporting.

Paperless quality checks can be configured to your product or line requirements. Customised line checks can be set up to enforce best practice at job-start, job-running and job-end, so nothing is missed. Common checks can also be extended to include other critical line control functions, such as checking the ejection systems on the metal detectors and checkweighers with challenge test pieces. All responses, images and corrective actions are automatically recorded in the audit log for easy retrieval in the future. And, with a digital paperless system, there is no need for large storage areas to keep records.

When quality tasks are mandated, it is easier to enforce compliance and consistency. The line can be stopped if a check is not performed or as the result of the check dictates, ensuring rigorous quality standards can be maintained.

Highlights.
- Provides complete confidence that all QA checks are carried out at the required times throughout the production run
- All QA events are stored in the OAL audit log for compliance reporting
- Automate quality checks by incorporating them into the line start procedure
- Include time-prompted checks throughout the job run, as well as at the end of the job
- Flexibility to configure and run QA checks to meet your specific requirements
- Checkweigher and metal QA checks can be included
- A wide range of data variables can be included, such as weight and temperature
- Reduction in storage requirements for physical paper records

FAQ
1. What kind of checks can be undertaken?
   a) Many different functions can be checked thanks to the flexibility of the system. For example, the system can take a photo of a specified product, or check which product looks like the product being packed against the product database.
2. Are any other OAL Connected modules required for the paperless system?
   a) No, but the OAL Product Database is recommended for a consistent database of product data to compare to.
3. Can the paperless system integrate with my other business systems?
   a) Yes, the system can be integrated with ERP, MES and SCADA systems.

OAL

Increase Profit Margins
Inspection Reporting

Most manufacturers will have a range of different checkweighers, metal detectors and X-ray equipment. Each device will collect lots of data in real-time and will often have its own proprietary reporting software. Therefore, preparing inspection reports is time-consuming and difficult.

The OAL system connects to all these different devices, enabling individual device reporting with a single system. With easy-to-understand graphics, detailed counts, weight analyses, end-of-batch reports, giveaway and more can be quickly and easily created using the data that is already being generated.

Furthermore, we can monitor device performance in real-time and alert teams to take corrective action quickly. The cost of giveaway can be monitored and tracked against baseline performance, to ensure that profit margins stay within expectations. All data can be easily accessed from a web browser or unlimited devices, or exported for use within audits or compliance reports.

Get alerts and take action as soon as giveaway moves above target

Highlights.
- Individual device performance in real-time, including number of rejects, weight and giveaway
- Monitor and record the cost of giveaway and track against baseline performance
- Take corrective action before problems escalate
- Access reports in your web browser on unlimited devices

FAQ
1. Can the system work with any brand of device?
   a) Yes, the system is brand agnostic so all brands of equipment and devices are supported.
2. Can the inspection variables be adjusted to my operating or inspection procedures?
   b) Absolutely. Set up of the inspection, performance and alert variables is easy to do from the dashboard.
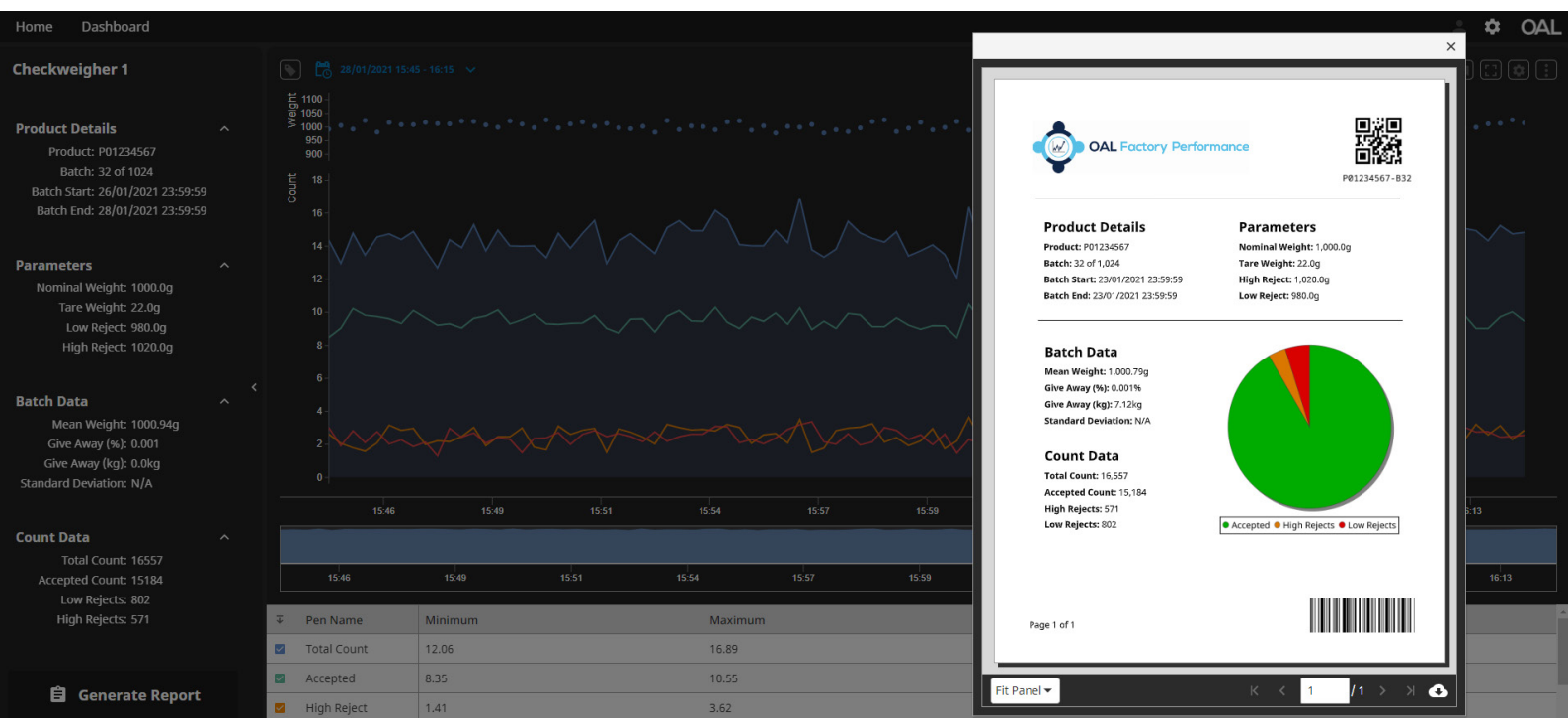
Improve Sustainability
Real-time Energy Monitoring

It's said that what gets monitored, gets managed. The ability to collect the right data and contextualise it is essential for driving any actions around improving the energy efficiency of food businesses. The OAL Connected system enables real-time energy usage and alerts so that data-driven decisions can be made regarding energy consumption.

After identifying where the optimal meter points are, data collection can begin. Energy usage data is clearly displayed in dashboards, which can be filtered by site or group. This makes it easy to determine which products are the most energy intensive, or where there are opportunities for improving energy efficiency. Alerts can also be set for energy consumption levels, which quickly brings to light any problem areas or products.

With this information, actionable plans can be made to reduce energy usage on the road to net zero food manufacturing. Where desired, third-party data analysis can be carried out via integration with Ignition, a universal platform for industrial automation.

Highlights.

- Benchmark and compare energy usage by site
- Actionable data – not just meter readings
- Real-time energy usage clearly displayed in user-friendly dashboards for further analysis
- Energy usage alerts to identify any problem areas or products
- Helpful for customer compliance and reporting requirements

FAQ

1. How is energy monitoring installed on a typical food manufacturing project?
   a) The first step is to identify suitable meter points for energy data capture within the factory.
   b) Next, we discuss your needs and confirm how you plan to use your data so the right controls are put in place and the right information is displayed on your dashboards.
   c) Finally, any desired alerts are set up before users are trained on how to use and adjust the system.
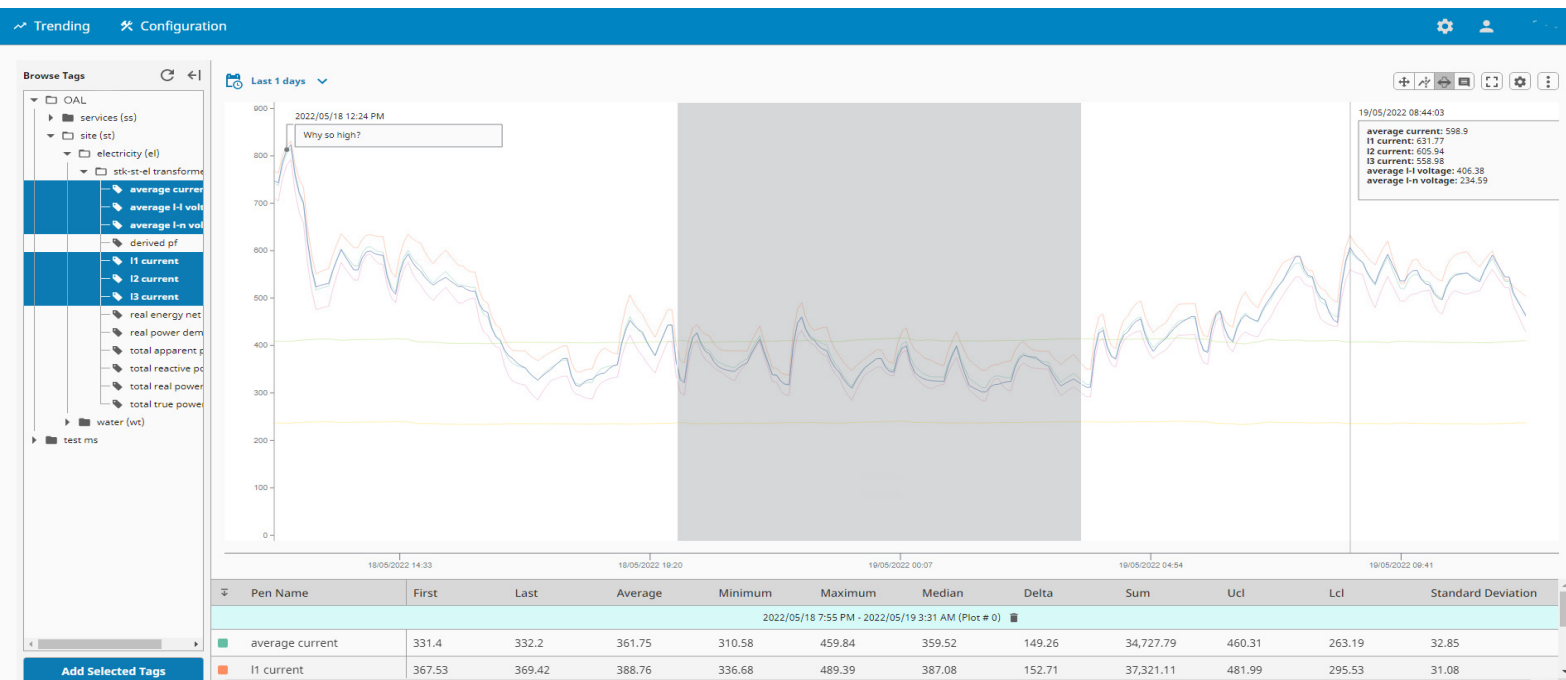
Drive Performance Improvements
OEE Line Performance

To improve performance, you need to trust the data you're working with – you need a single source of truth. Most OEE systems rely on additional human input and aren't connected to factory systems
.
In contrast, the OAL system knows exactly when a job starts and finishes, as well as having all the data required to provide meaningful OEE metrics. For example, the system can be configured so that when the line stops, the user must select a reason code on the line terminal for downtime. This helps identify patterns so any issues can be addressed.

Data is reported across devices using our powerful reporting engine and widgets. The OAL system can be expanded to pull data from other PLCs and report on different aspects of your factory. There's no duplication of data and manufacturers can achieve a single source of truth.

50% productivity improvement
"I've been very impressed with the OAL Connected system, it's really been a game-changer for us. What was originally brought in to prevent product recalls has now become an invaluable tool to improve our production efficiency while also eliminating paperwork from the factory floor. By highlighting 'invisible' problems, the system has transformed our operations and helped to position us for future growth."
— James Robertson, Director, Joseph Roberston

Highlights.
- Automatically collect data from all packaging line equipment
- Ability to configure the system with specific downtime reasons
- Collect data relating to performance, quality and availability to calculate OEE
- Data can be visualised via several easy-to-read reports, which are accessible to view at any time via PC, tablet or smartphone

FAQ
1. What types of equipment can be used with the Ignition system?
   a) Ignition is built on open standard technologies and in our experience, you can connect to anything. From data lakes in the cloud to legacy recipe control packages, Ignition will let you get to use your data to drive performance.
2. Is there a limit to the number of licenses?
   a) Ignition is an unlimited license model. This means you pay a single license for a site and can connect as many devices, clients, PLCs and tags as you like. So, if you want to connect to an additional device or present data on a different screen (client), there is no additional licensing cost.
3. Can the system scale as operations grow?
   a) Ignition scales to your needs and can manage complex operations across multiple sites from one central location.
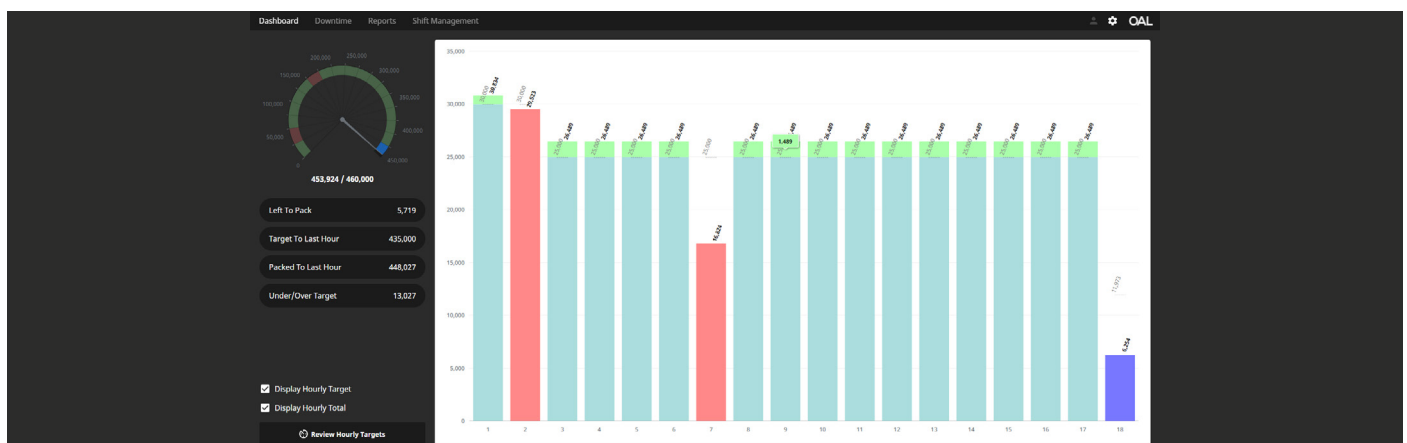
Protect Packaging Integrity
Vision Inspection

The OAL system provides the digital infrastructure for food manufacturers to add additional inspections to add value to their businesses. Perhaps you need to protect sensitive product lines, or your customers demand 100% quality. OAL's partnership with Cognex provides access to a wide range of different inspections that can be deployed to ensure 100% quality can be achieved.

For bespoke vision applications, we work with you to fully understand your requirements. Together, we determine if a positive result be achieved by a different method. If not, we develop the vision system for your needs and test the application either onsite or at OAL. After the results are refined, the new vision system is installed and implemented in your factory.

Highlights.

- Improved vision system able to undertake a range of different inspections for 100% quality
- Eliminates errors, provides full traceability, and protects both consumers and your brand
- Reduces labour costs and waste
- Tailored to your particular requirements

FAQ

1. How is the Cognex system better than other vision systems?
   a) Typically, there is a high degree of variation in terms of fonts, sizes, font distortion, missing or incorrectly positioned text, or packing changes, all of which a typical vision system struggles with. In contrast, the Cognex system can cope with all of these variables and still offer 100% read rates. dates, like Christmas Day!

OAL
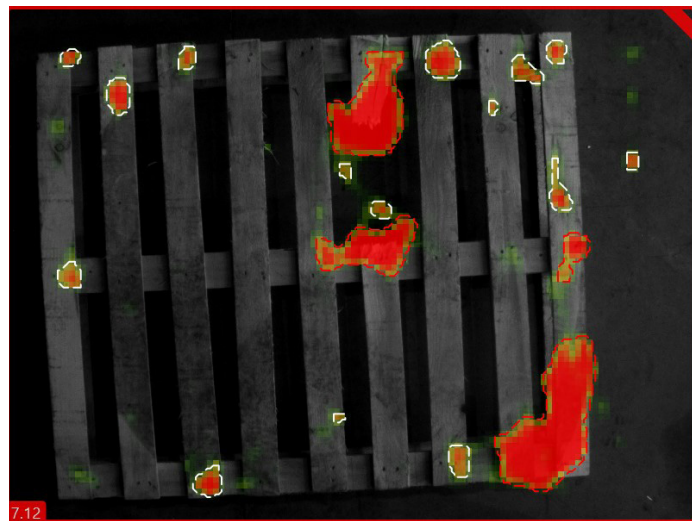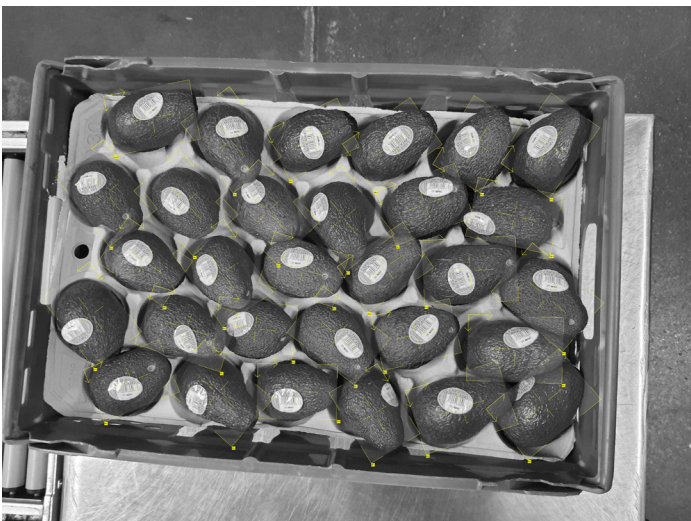
Customer Service

We know minimising downtime is critical to all successful food manufacturing businesses. OAL have a dedicated support team focused on preventing downtime whilst helping your team grow with ongoing training and audits.

- 24/7 phone support available 365 days per year
- 95% of issues resolved via remote VPN support
- Escalation to on-site support as required

- System health checks and training
- Ticket system for every issue raised, with feedback requested after every ticket to help us improve

Thanks to our extensive food manufacturing experience, we make audits and compliance with codes of practice – including M&S, Tesco, ASDA, Sainsbury, Waitrose, Morrisons, Lidl, Aldi, Co-op, and Amazon – easier, faster, and much more cost-effective.

Over 94% of customers agree that OAL made it EASY to handle the issue

Do you want to transform your food business?

Speak to an expert today
on +44 1733 394 700

OAL Connected

OAL Connected

OAL is a multi-award-winning engineering company using automation and robotics to make food manufacturing safe, sustainable and profitable. We work with the best technology partners to provide world-class solutions. Our partners include:

University of Lincoln

OAL have a development partnership with the University of Lincoln, providing access to academic expertise in critical areas, including artificial intelligence, big data and vision. We partnered with UoL for a £4.5million Innovate UK funded research project focused on improving food manufacturing, and regularly draw on their expertise to help develop our solutions.

Cognex – ID/Vision

OAL work closely with Cognex, a manufacturer of advanced machine vision and industrial barcode reader systems, to offer a superior vision system than others available on the market. With Cognex, instant improvements can be made to the manufacturing process, enabling products to be made at higher speed, without defects, and at a lower cost.

Ignition – SCADA/MES

Ignition software is a universal platform for industrial automation. It is used by manufacturers in over 100 countries and by 54 Fortune 100 companies. OAL is a gold level integrator and has successfully implemented solutions using the Ignition software platform across a wide range of food and beverage companies. We're excited to offer this new technology, licensing, and overall SCADA approach to our customers.