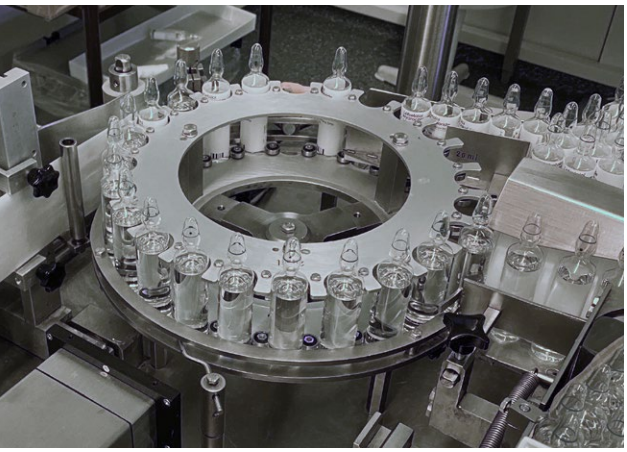
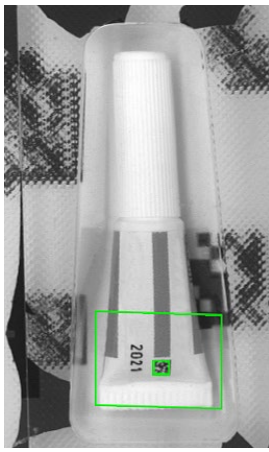
Inspection Systems for Pharma, Cosmetics and Food.





scanware

News

2021

Harald Mätzig, Manager of scanware electronic GmbH

Dear Reader,

2020 was a year with many challenges for everyone, which no one expected. We, scanware electronic GmbH, sincerely hope that you have survived the time so far well, that you remain hale and hearty and that we may continue to provide you with stability and security.

We used the past year for many new developments as well as successful implementations of numerous projects, so that we were able to fulfil customer-specific requirements at the highest level. We do not want to reserve all this for you and would like to give you a review of our year 2020 with this brochure.

We thank you for your trust, for the enriching cooperation, but also for the demands you place on us, which constantly motivate us.

We hope you enjoy reading this brochure and hope to be in contact with you soon.

Steadily Growing Demand for Ampoule Inspections

The **ring code inspection SIGNUM** is used on packaging and labelling machines to exclude faulty ampoules and the under-mixing of foreign preparations. The number of enquiries we receive regarding inspection solutions for ampoules is constantly increasing.

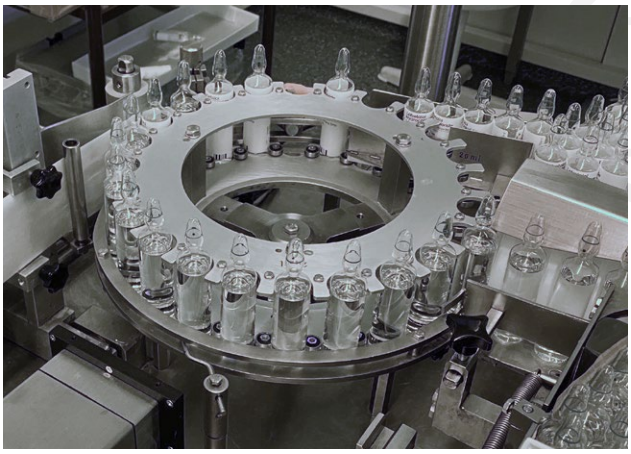
In addition to the inspection of ampoules in transparent PVC blisters and carton trays, single ampoules and mixed loads are also inspected on the lines. Both colour markings on preparations and the presence of labels can be inspected. For checking labels, the lighting setting can be specified independently. Successive object illumination takes place twice in this process. The evaluation of both images takes place in the same control step.

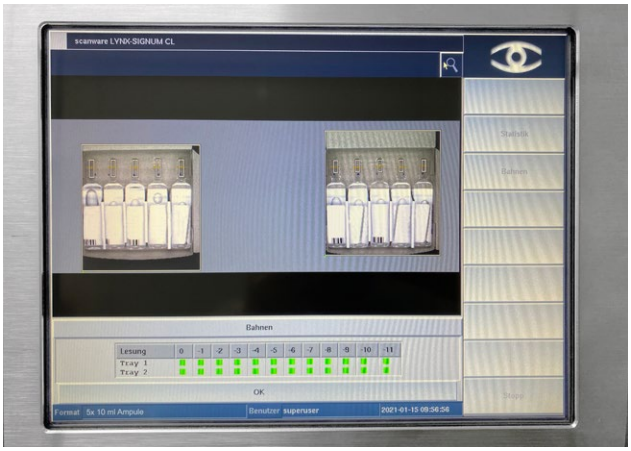
The **ring code inspection SIGNUM** software also allows the colour rings to be inspected. Different criteria of the ring code quality are taken into account, such as the number of colour rings, the ring colours, the sequence of the ring codes, the length of the entire colour ring code as well as the interruptions, widths and distances of the rings. As this software is mostly used on labelling machines, the labels are inspected before dispensing.

On the user interface, all ring code inspection systems are operated by a uniform menu structure. This allows the user to operate each system intuitively, as the menu is self-explanatory in structure, so that the operator does not need any previous knowledge and can start working after a short briefing.

The quality requirements are met by high-quality hardware components and the always up-to-date software versions, enabling the pharmaceutical and cosmetics industries to carry out reliable quality controls.

In the second quarter of 2021 scanware will present a system development for the inspection of parenteral preparations.





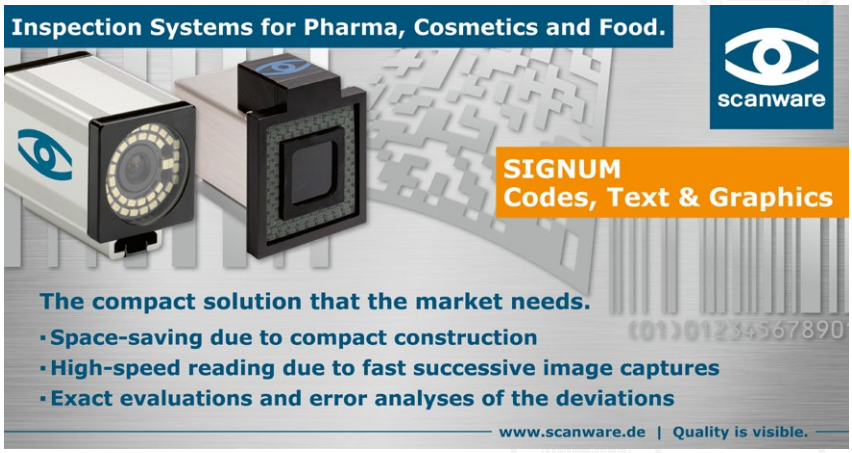
scanware Offers 2DC Compact Systems for Discontinued Code Readers

In recent years, the pharmaceutical industry has focused on the dominant topic of "Track & Trace". Compared to other suppliers, scanware has continued to focus on blister inspection and code reading and attaches great importance to the constant further development of existing solutions.

The compact two-dimensional **code inspection SIGNUM** was realised by scanware as a fully integrated system solution, which is ideally suited for the replacement of competitor systems available on the market, some of which have already been discontinued.

The space-saving evaluation unit of the **code inspection SIGNUM** consists of the 2D code reading heads as well as a stainless steel housing in which the panel PC, the power supply unit, the Ethernet switch and a PLC with shift register are installed. A connection for installations of up to five cameras has also been integrated, so that all necessary components are accommodated in the compact design. This enables simple and quick retrofitting of installed existing systems without great effort.

The **code inspection SIGNUM** can be used on all common cartoners, labellers, blister machines and tube fillers in the packaging industry. The intelligent cameras evaluate the codes with exceptionally high reading performance. In the event of incorrect identification, the integrated shift register provides the necessary signals to eject the packaging material, which has been evaluated as bad, from the packaging process.



High-end Technology for the Pharmaceutical Industry

For the inspection of solid dosage forms, both high-resolution and unique three-dimensional **blister & product inspections** of the **SPECTRA** system series are used and, with the high-end technology employed, offer powerful detections of the smallest defects, height errors and deviations as well as volume errors and deviations.

For the high-resolution **blister inspection SPECTRA**, 3CMOS colour area scan cameras of the latest generation with total image data of 18 megapixels are used. The three-dimensional **blister & product inspection SPECTRA** can achieve a line resolution of 4,608 pixels with the camera technologies used. The smallest object deviations can be detected from a difference of 1/10 mm. Thanks to the CompactPCI-serial network card used, high image processing is made possible.

The **print inspection SIGNUM** is used in the further packaging process to detect the smallest errors, deviations and inaccuracies on full-surface printing. This accurate detection performance is made possible by the use of two cameras with total image data of 24 megapixels.

The **management system IMPERA** takes over job control of all systems and enables automatic loading of the required formats and parameters as well as fully automatic teach-in of the print image control via hand scanner and PDF print sheet.

The implemented systems were each equipped with their own evaluation unit. The evaluations are visualised via a uniform user interface on a panel PC. Each of these systems contains the identical high-performance hardware of the latest generation.

The high colour resolutions, unique 3D images, intelligent algorithms as well as the constant further developments of the inventory solutions give scanware a reputation as a provider of high-end technology. With these system combinations and the resulting recognition performance, scanware sets an example of high-end technology.

Double Camera Connection to Frame Grabber

Until now, increasing resolution with multiple cameras was only possible via additional multiplexer hardware. A newly developed solution is the direct connection of two cameras, eliminating the need for a multiplexer.

The second camera connection used in the frame grabber offers significant speed advantages over the conventional single solution with frame grabber and multiplexer. The new frame grabber has since been used as a hardware standard and offers every system the possibility to increase the resolution.

In 2018 scanware started the changeover to the new hardware generation and has been working on constant further development ever since. More than 300 systems with the latest hardware generation have already been implemented on a wide range of systems.

Inspection Solutions for UV Printing Processes Used

In order to be able to check invisible features produced in UV printing processes, scanware developed illumination units with inserted ultraviolet light sources. With this solution, UV prints that are invisible to the human eye can be inspected for presence and evaluated by machine.

The luminophores used in the printing process are used for emitting visibility to enable machine evaluation, so that the coordinated camera and illumination unit can reliably detect and evaluate the wavelengths of the emitted light.

scanware has already equipped several packaging lines with this lighting technology in order to reliably detect the presence of clear labels on ampoules, tamper evidence labels on folding boxes or the presence of leaflets in folding boxes.

This solution is also used for evaluating non-visibly printed codes on folding boxes, blisters or bottles, for example to evaluate batch numbers, expiry dates or auxiliary codes printed with UV ink.

System Upgrades Instead of New Purchases

The inspection systems from scanware are characterised above all by their durability. Numerous customers have already been convinced by the quality of scanware inspection systems and can confirm a longevity of up to 20 years.

Since the systems, which have been in production for more than 20 years, have to be adapted to the latest technology and the requirements of the pharmaceutical, cosmetics and food industries, it is advisable to upgrade existing systems.

To keep system acquisition costs manageable, scanware offers upgrades to existing systems so that customers achieve significant cost savings.

Every year, a large number of existing systems are upgraded, and the hardware and software are adapted in line with time and requirements. In addition to offering system upgrades, scanware also guarantees the availability of necessary spare parts for up to 10 years.

Further Developed Interfaces

For more than 30 years scanware has been supplying well-known pharmaceutical companies and machine builders with high-end technologies for optical quality inspection on packaging lines and has since developed first-class inspection systems, track & trace solutions for various applications as well as a unique level 2 line management software that is compatible with a large number of the common level 3 interfaces.

In addition to the level 3 interfaces, further interfaces have been developed.

The **management system IMPERA** as equipped with the OPC UA protocol last year, which now enables the connection of OPC UA-based components. The standardised protocol is primarily used in the machine environment for the exchange of states and events.

The Windows connection to Active Directory via LDAP, which is a network protocol for querying and changing information, was also successfully introduced.

IMPERA Installations for Complete Traceability

A German pharmaceutical customer equipped 17 packaging lines with the **management system IMPERA** level 2 software developed by scanware in order to realise the traceability of different packaging units up to the loaded pallet with the help of the line management system.

The **management system IMPERA** collects all recorded data from the Level 1 systems of the **CAPA** and **SIGNUM** system series.
The data exchange is made possible by the connection to the customer-specific Level 3 interface WERUM.

Data that is serialised as well as aggregated with the help of scanware is located on individual folding boxes, bundles, shipping cartons as well as on loaded pallets.

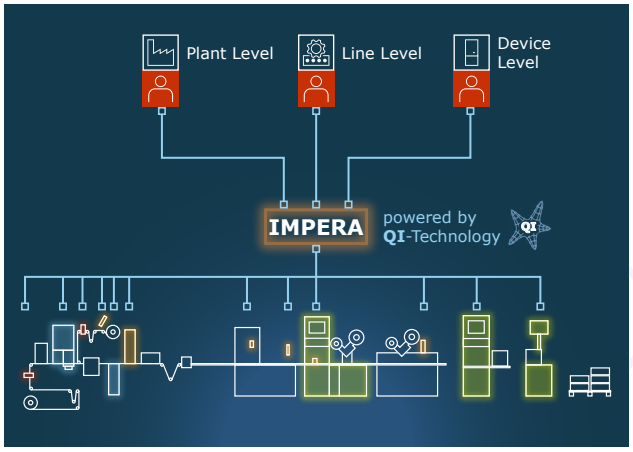
Depending on the order requirements, the markings of the packaging units are implemented in the form of GS1 standard codes or Russian crypto codes and contain information on the packaging material, lot number, order number and serial number.

The **track & trace systems CAPA** and **code inspection systems SIGNUM** record the variable data for traceability.
Subsequently, the **management system IMPERA** evaluates them, visualises the links and enables data exchange to the Level 3 interface WERUM used by the customer.

The functions "deaggregation" and "rework" offer the possibility of sample removal and also process returns of the packaging units during a running packaging process. This means that sub-packaging can be removed from its outer packaging, such as folding boxes from a shipping carton, and booked as a sample removal and subsequently returned to the process.

Serial numbers that do not belong to the order are displayed with an error message, ensuring the security of the Track & Trace application.

To be able to determine the progress of the orders, the customer can view the number of final aggregated packaging units on a panel PC in a static evaluation.

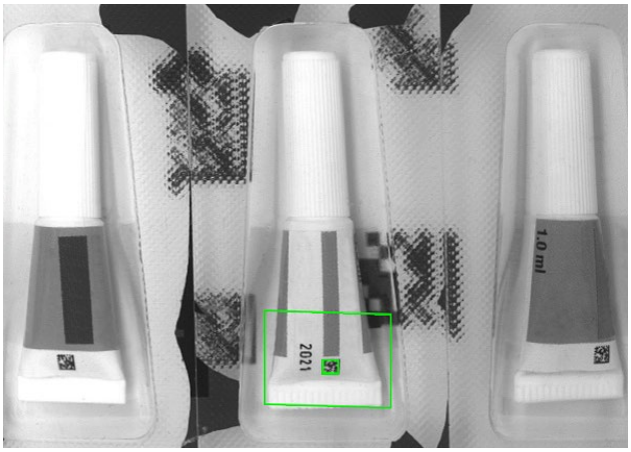


DataMatrix Reading on Curved Area

There are special requirements for the packaging of products in tubes, which scanware manages with various systems.

While the **blister & product inspection systems SPECTRA** are used for checking the presence of the tubes as well as their caps, print inspection systems of the **print inspection SIGNUM** prevent product sub-mixing with the help of presence detection and reading of printed codes. The code readers used can inspect even the smallest code dimensions in the form of data matrix codes located on curved surfaces.

During a running production, movements of the individual tubes within the cups can occur, so that skewed positions of the data matrix codes to be inspected can arise. This can lead to the individual tubes within a blister showing different representations of the codes and a perfect alignment of the test objects cannot be guaranteed.



scanware developed a secure solution for reading distorted data matrix codes on tubes and uses a frame grabber for large inspection areas, on which two high-resolution 12 megapixel black and white cameras are operated.

With this solution, elements are searched for in a predefined large-area inspection area which, despite distorted representations, correspond to the characteristics of a data matrix code and resemble them visually. After successful localisation of the individual codes within the blister, the identifications are made so that the data matrix codes are inspected for presence and then read.

Blister Printing in the Fully Automated Packaging Process

On a fully automated packaging line where blisters are fed for individual printing, both the **management system IMPERA** and the **print inspection SIGNUM** were used.

The function "automatic teach-in via PDF file" is used to teach-in and evaluate the required formats, which makes it easier and faster for the customer to work with.

The print template is used as a reference image so that the required inspection areas are extracted from the print template as a reference. In the learning run, the positions are read from the PDF and transferred to the image captured with the camera.

The blisters are identified after successful format configuration and provided with customer-specific print elements. In this project, the **management system IMPERA** takes over printer control for an Atlantic Zeiser OMEGA Pro printer.

After the individual blisters have been printed, they are verified and packed as units in cardboard trays. The **management system IMPERA** then summarises the verified data and exchanges data with the PLC via a standardised OPC UA interface.

Serialisation on Bottling Lines

Since the serialisation requirements for pharmaceutical products, scanware has now equipped well over 100 packaging lines with track & trace solutions.

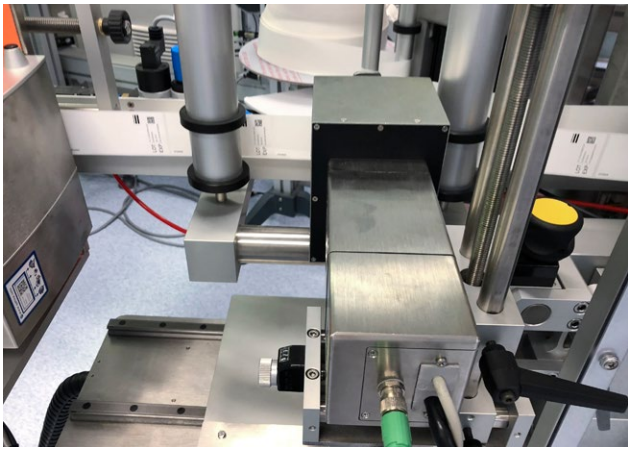
With the combination of **management system IMPERA** and diverse **track & trace systems CAPA**, scanware offers optimal solutions for serialisation and aggregation, which are reliably in operation at many pharmaceutical companies and contract packagers.

In 2020, another complex packaging line of a German contract packer was commissioned, using six scanware systems.

The **management system IMPERA** was used for the printer control of various label prints as well as the serialisation and aggregation of bundles, shipping cartons and pallets. scanware configured a connection to the customer-specific level 3 software Arvato for the data exchange.

Several **print inspections SIGNUM** were installed in order to meet a wide range of requirements in the continuous packaging process.

One of the **print inspection SIGNUM** inspects the labels before they are applied to the bottles. Another inspection system is responsible for verifying invisible auxiliary codes



printed on the bottoms of the bottles with UV ink, which are used for the subsequent aggregation of bundles and can only be inspected with a specially made UV illumination unit. Subsequently, a newly developed 360° multiple camera system is used to check the labels attached to the bottles.

The inspected bottles are then combined into bundles. This is followed by a new bundle inspection of the auxiliary codes as well as the label prints that are applied to the bundles. The recorded serial numbers of the bottles as well as bundles are then combined again and aggregated with the help of the **management system IMPERA**.

The aggregated bundles are then packed into shipping boxes so that the invisible help codes are re-identified and the labels for the shipping boxes are printed again. The serial numbers of the bottles, bundles and shipping cartons are also aggregated at this stage of the process. This aggregation is carried out fully automatically in this production stage by a top loader used by the customer.

For the subsequent pallet aggregation, the **mobile base station CAPA** was used, which also handles the printing of the pallet labels. A hand scanner was also integrated in order to be able to manually aggregate the pallet and rework it.

On the panel PCs used, all serialised and aggregated products as well as statistics from the order-related good and bad evaluations can be visually viewed and saved on an order-by-order basis. Data backups are made via a USB interface or, if desired, via the LAN network.

Termine

15.06. – 16.06.2021 ACHEMA Pulse - virtual
28.09. – 30.09.2021 Fachpack - Nürnberg, Germany
23.10. – 26.10.2021 PackExpo - Chicago, United States

Quality is visible.

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