

Reassurance for Logistics

A Camera-Based Solution Simplifies the Registration of Incoming Goods in the Electronics Industry



The automated WEControlDOME incoming goods station from CompControl enables companies in the electronics manufacturing industry to record incoming containers with absolute transparency.

Image: Comp Control / Background: shockfactor.de - stock.adobe.com

The image processing for an automated goods receiving station is handled by a high-resolution GigE camera including an adapter for controlling the lenses used directly from the camera itself. This enables the flexible verification of goods with different dimensions.

Everything has to be effective and precise when companies in the electronics industry receive new deliveries in goods receipt. Only if the incoming goods can be checked with as little time as possible, product quantities and types can be booked into the merchandise management system and then stored in a suitable place, can the subsequent processing of the components be realized without further delays. Manual registration of incoming containers is usually too slow and too error-prone for this, making economical processes in this area almost impossible. However, automated solutions are usually not flexible enough to reliably identify the required data on the different geometric container formats of the incoming electronic components.

Comp Control IT-Service und Vertriebs GmbH, based in Gersfeld, Germany, solves this problem with its automated goods receiving station Wecontrol Dome. "We developed this system especially for electronics

manufacturing to enable companies from this industry to record incoming goods from containers at an incoming goods station in an absolutely transparent manner", explains Comp Control Managing Director Christoph Limpert.

Wecontrol Dome determines data such as the order item, the article type, the quantity, batch numbers and all other information through a barcode and plain text analysis and verifies the recorded data by comparing it with the manufacturer information. Without further manual intervention, the system also takes over the automatic goods receipt posting in the merchandise management or ERP system and allows the integration of an automatic labelling system for the containers as well as their photographic documentation.

31,4 Megapixels Capture all the Details

According to Limpert, the unique feature of this system is the automatic capture of each individual container and the barcode and

plain text information on it via an integrated camera, which, by use of an additional autofocus system, delivers images of sufficient quality even with objects of different heights. Such a system was necessary because the working distance for each image capture can differ from the previous data acquisition due to the different heights of the incoming packages. "This situation required a special setup of the image processing system, which we were able to realize with the help of SVS-Vistek", says Limpert.

After initial preliminary talks with the customer the experts from SVS-Vistek quickly found the camera optimally suited for this application in their wide product portfolio: the monochrome GigE camera exo342MGE, with its high resolution of 31.4 megapixels, met all the requirements for capturing the barcode and plain text information on the component containers reliably and in sufficient quality, as well as transferring the image data to the connected PC for evaluation and storage. Proven features such as the excellent thermal concept, which allows operating temperatures of up to 60 °C, and the integrated, versatile light control were further reasons for using the exo342MGE to solve the customer's task.



The adapter enables the camera to have an autofocus function and thus creates the conditions for flexible, fast, and easy image acquisition.»

The main challenge, however, was to capture the images with the same quality despite the different heights of the test objects without having to intervene manually. The camera manufacturer solved this task with its SVS-EF adapter, a proprietary development of the company that allows convenient focus and aperture control of Canon EF-mount lenses directly from the camera. The adapter enables the camera to have an autofocus function and thus creates the conditions for flexible, fast, and easy image acquisition of incoming electronic containers regardless of their height.

Trend Towards Small Batch Sizes

According to Thorsten Schmidt, Head of Product Management & Support at SVS-Vistek, the application of the SVS-EF adapter at Comp Control represents a typical example of the function of this product: "In many industrial inspection solutions, fixed focal length lenses are still used. This makes sense in production lines where large quantities of one and the same part are manufactured and inspected over long periods of time. However, a completely different situation arises when inspecting parts with smaller quantities and frequently changing test objects: In these cases, an inspection solution

must be quickly adapted to new products and parameters in order to ensure effective production."

According to Schmidt, at least since the introduction of Industry 4.0, the trend has been moving in this direction: "If, in extreme cases, the batch size drops to a quantity of 1, more flexible solutions are an indispensable prerequisite for the economic success of production companies. Focusable lenses are an important building block here, as they facilitate the inspection of objects with different geometric dimensions."

The adapter can be used in combination with numerous industrial cameras of the EXO, FXO and HR series to control focusable lenses with Canon EF or EF-S mount without additional hardware and software. The camera controls and supplies power to the lens, which is seamlessly integrated into the camera's GenICam tree from a software perspective. The EF adapter is available in different variants for lens mounts with C-mount, M42 and M58 and can be used with all cameras of the EXO, FXO and HR series from SVS-Vistek. "Users have a wide choice of camera models from our portfolio in terms of resolution, image acquisition speed and interface to optimally design their image processing system according to the requirements of the

SVS-Vistek

(www.svs-vistek.com) has exceptional know-how in industrial image processing as an innovative manufacturer of high-quality industrial cameras for more than 35 years. The company develops and produces a wide range of standard cameras as well as cameras with the highest resolutions, above-average image quality and all relevant interfaces. With high-performance components such as lenses, illuminators, filters, frame grabbers and cables, SVS-Vistek supports customers in the realization of economical, individual and customized camera solutions for a wide range of industries.

application to be solved and to easily implement flexible inspection solutions", Schmidt emphasizes.

Proven Solution

According to Managing Director Limpert, their automated goods receiving stations are already in use in large numbers and worldwide at many companies in the electronics industry. "After commissioning, these systems sometimes run in 3-shift operation around the clock at our customers and have proven to be very reliable there. In the rare cases of error, we always received support quickly and image processing-based problems were solved immediately. The good cooperation, that was already evident in the selection of components and the detailed feasibility studies during the development phase of the system, has also proven itself in the successful use of the goods-in stations." According to Limpert, there is reason enough to continue the partnership that has existed for more than a decade and also to rely on image processing from SVS-Vistek for future applications. ■

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The SVS-EF adapter from SVS-Vistek enables an autofocus function of the camera used to capture images of incoming electronic containers regardless of their height.