A BICOLOR LED RATHER THAN A COMPLEX SIGNAL SYSTEM

SIMPLE VISUAL SOLUTION IDENTIFIES RAW MATERIAL CONTAINERS

Signal lights on machines and plants provide clearly recognizable status displays. However, conventional solutions may sometimes require complex installations and are not always practical, let alone necessary, as shown by the identification of raw material containers on the automated filling plants of the Austrian-based spice specialist Kotányi.

Kotányi GmbH, based in Austria, is synonymous for the variety of a spice world steeped in tradition. "The company was founded in 1881. Since 1989, our headquarters has been located in Wolkersdorf in Weinviertel, around 20 kilometers north of Vienna. From our site, we primarily supply spices, spice mixes and herbs to around 23 countries all over the world. We also produce a wide range of gastronomy products such as oils, vinegars and cooking sprays for baking tins. We make around 230 million products on average each year, with around 15,000 metric tons of spices, spice mixes and herbs leaving our factory on a yearly basis," explains Rudolf Kau, Team Leader for Control and Identification Technology at Kotányi.

TWO CONTAINERS SUPPLY A FILLING PLANT

Dry products are among those packaged by fully automated plants, which each feature two raw material containers above the filling station. Although the filling process is automated, operating staff are still always present at each plant, for example to make adjustments, perform product checks and fix any malfunctions. In addition, whenever a raw material container is emptied, these employees receive a corresponding message saying that the plant needs to be switched to another raw material container to continue the filling process. At the same time, a request is sent for a forklift truck driver to replace the empty raw material container with a full container.

UNINTENTIONAL PROCESS INTERRUPTION

"In the past, we sometimes had situations where an employee requested a forklift truck driver but when the driver arrived, the filling plant wasn't manned for some reason. The forklift truck driver then wasn't sure which container needed replacing," says Rudolf Kau. Occasionally, this meant that a full raw material container that was still in operation would be lifted, thereby interrupting the filling process. In some cases, putting the machine back into operation required time and effort, especially if lifting the container resulted in the contamination of the product being packaged. "For this reason, in the course of our processes for continuous improvement, we looked for a solution that signals to the forklift truck driver exactly which container needs replacing at any time, even if there are no operating staff present."

THE SEARCH FOR AN EFFECTIVE, COMPACT SOLUTION

The crucial impetus ultimately came from one of Kotányi's forklift truck drivers, who suggested that the raw material containers be equipped with a signal light. However, a conventional signal source was out of the question from the outset. Team Leader Kau explains why: "In general, conventional signal lights have light sources that are easy to spot from all angles, for example to display the status of a specific machine.

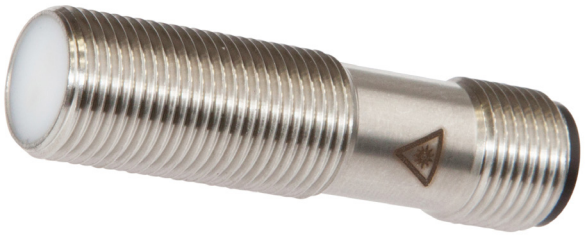
However, such light signals, which are visible from a long distance, and the associated signal change would irritate our employees working close to the filling plant, after all, only the forklift truck drivers need to be informed which raw material container needs replacing." Therefore, the solution needed to produce a light signal that was very targeted and only relevant for the forklift truck driver. In addition, the light had to be extremely compact, since the raw material containers on the front side of the filling plant are lifted with the forklift truck. In Rudolf Kau's opinion, this meant that the dimensions of a conventional signal light would have prevented the forklift truck from maneuvering easily and would also have resulted in the risk that one of the forklift truck's forks would accidentally touch the light and potentially damage it.

LED LIGHT WITH COLOR CHANGE

Looking for a product that would meet all of the previously mentioned requirements, the team leader finally struck gold when researching online: "I was already in contact with Thomas Wally, ipf electronic's Application Specialist for Austria, so I knew that the sensor specialist also offered LED lights. I therefore carried out a targeted search on the company's website and came across an LED bicolor light."

The operating staff at the filling plant receives a message as soon as a raw material container above the filling station is empty. Then, the plant is switched to the second, full container and a request is sent for a forklift truck driver to replace the empty container. (all images: ipf electronic)

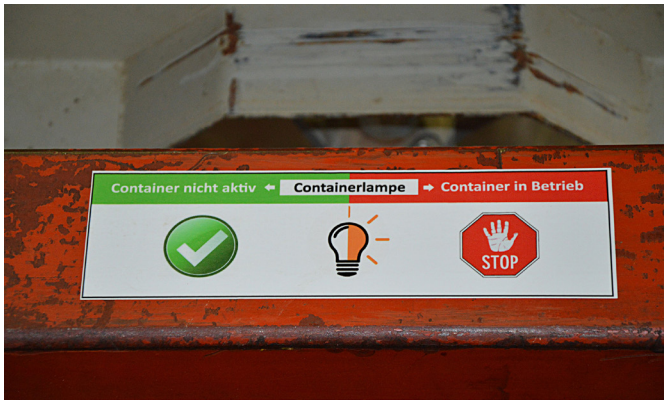
A special feature of this light, which has the designation **AO000486**, is its ability to change color via the selection and activation of the respective connection pin. This means that the solution is able to switch its LED light between red and green as necessary. The light has a stainless steel housing (IP67) and features an integrated bicolor LED, which supplies an illuminance of 0.6 lux (red) and 0.8 lux (green) at a distance of 1m. With an overall length of 47mm, the **AO000486** is also especially compact and therefore requires little space for installation.



The **AO000486** is able to change color from red to green via the selection and activation of the respective connection pin. The stainless steel housing in IP67 is very compact with an overall length of 47mm. The connection uses an M12-connector.

PROBLEM-FREE INSTALLATION AND CONNECTION

"This LED light impressed me basically right from the start. Nevertheless, we ordered samples for on-site testing, in which we initially installed a light on each of a filling plant's raw material containers using the associated mounting brackets. The integration into the plant control system was very simple, since the light can be controlled with 24V signals. The wiring also proved to be straightforward, since the M12-connector enabled us to use ready-made cables for the electrical connection and the routing in the plant's switching cabinet," says Rudolf Kau, describing the simple installation of the bicolor LED.



Misunderstandings prevented: additional information above the LED lights explains the meaning of the light signals.

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CLEAR LIGHT SIGNALS – NO MISUNDERSTANDINGS

Now, if one of the raw material containers above the filling station is empty, the operating staff requests a forklift truck driver by pressing a button and switches the LED light below the relevant container to green. Since the forklift truck driver knows what to look for when they arrive at a filling station, the clear light signal enables them to instantly identify the position of the container to be replaced, even if there is no employee present at the plant to answer any questions. A red LED light below the second container signals to them that this container is still in operation.

According to the Team Leader for Control and Identification Technology, the initial experiences with this simple but extremely efficient solution were so positive that Kotányi decided to equip all filling plants with the LED bicolor lights from ipf electronic. "Since then, operational reliability has increased considerably, since misunderstandings in the replacement of raw material containers are prevented by the targeted identification of the relevant container," sums up Rudolf Kau.

A simple, compact and effective solution: the LED bicolor lights are located below the raw material containers. A green light signals to the forklift truck driver which raw material container needs replacing.

Rudolf Kau shows how the signal solution was integrated into the overall concept of the filling plant. The compact LED lights do not prevent the forklift truck from maneuvering and they cannot be damaged accidentally by a forklift truck's fork.