Application Information

ICS 100: keeping government finances up to scratch

It's not possible without tax – and neither is smoking. To ensure that there's no smoke without tax, revenue stamps are attached to boxes of cigarettes and packets and tins of tobacco. A leading tobacco producer checks that the stamp is firmly attached (and that the Exchequer's coffers are being filled) with the intelligent ICS 100 camera system.

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Those who don't smoke pay tax. Those who do smoke pay more – namely the tobacco tax. That this has been surrendered by the tobacco producers is evidenced by the revenue stamps attached to tobacco products. So if the stamp is missing, one is smoking illegally and the producer bears responsibility. ICS 100 Camera Sensors from SICK ensure that the Ministry of Finance does not see red and that the producer is whiter than white. They are image processing sensors of a new type: unlike most other vision solutions the camera, optics, illumination and evaluation are accommodated in a single, compact housing, considerably simplifying installation, operation and maintenance.

Live image simplifies installation and provides reliable revenue stamp detection

The devices are installed at the outlet of a foil-winding machine, where they check the cigarette boxes from above and from the side. Short inspection times of less than 20 ms, reflections of the protective foil lying above the stamp, more than a dozen types of boxes varying in colour, format and reflectivity properties, and a handful of differing revenue stamps place great demands on reliable detection. The possibility of visualising the camera's live image on a parameterisation unit proved particularly helpful in solving this task. It allowed the teach-in and search field to be focused on the interesting area of the packaging and the sensor could be aligned optimally.

Pixels for honesty

Two cigarette boxes at a time are moved past the ICS 100 at a high cycle rate by the transport system. The rapid CMOS chip immediately takes the picture and converts it to binary form on the chip. The image is then inspected for the presence of the image points, the so-called pixels, generated by the stamp. If enough pixels are detected, the revenue stamp is present and the box is transported onwards to the carton packing station. Units with missing revenue stamps are diverted away.

Vision impossible ? Not with the ICS 100 !

Whereas it has long been impossible to reliably detect the stamp below the foil, the ICS 100 can now solve this task easily and quickly. In future, vision (i.e. image processing) will be possible for other tasks.