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Technical report

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Adaptable image processing

The new CS-60 Vision Sensor from di-soric solves demanding inspection tasks

The flexible CS-60 Vision Sensor from di-soric can be configured on demand and is suited for various handling, assembly and testing tasks in all industries. With exchangeable M12 lenses and integrated LED high-performance lighting, the CS-60 Vision Sensor offers image results of the highest quality. Tools which can be loaded via software create a multifunctional Vision System that is precisely tailored to requirements.

When reconceptualizing or rebuilding systems, functional aspects and the efficient, space-saving linking of individual production and assembly units are front and foremost. Image processing systems do not come under consideration until it is clear where and to what extent measures have to be taken for process and quality control. The transport, handling and assembly applications are largely set at this stage, and vision sensors have to adjust to the pre-specified framework conditions.

For demanding object detection tasks, for example in connection with high process speeds, large distances to the object or the effect of ambient light, simple vision sensors with a liquid lens and autofocus tend to reach their limits. With the CS-60 Vision Sensor, the sensor and image processing specialist di-soric has developed a novel sensor type for demanding inspection tasks that is unique in the market with respect to the flexibility offered, intuitive operation and the price-to-performance relationship. “The CS-60 Vision Sensor with its four exchangeable lenses can tackle almost any inspection task and offers enormous flexibility with respect to distance, field of view and resolution. Even in the basic design, the device can localize, detect and count,” emphasizes Patrik Drexel, Product Manager for Lighting & Vision Sensors at di-soric. Additional functions, such as measuring or reading 1D/2D codes, are easily loaded to the sensor as needed. “In this way, you only stock one sensor type, which is kept current by way of regular upgrades and as needed, so that the required function can be supplemented. So you only pay for what you actually need!” adds Patrik Drexel.

Vision sensors are used across all industries in numerous systems and applications. For example, in the context of parts handling, quality and end-of-line checking. Typical: A vision sensor detects the type, scope and position of a product and transmits the information to a computer unit which instructs a downstream pick-and-place application. This application now knows how it must grasp the object and position it correctly in packaging or in a workpiece receptacle. When used in a testing and measuring station, the sensor realizes whether a workpiece is present, complete, and

has the desired properties. With the “Measure” tool, the angle, diameter, and distances can be determined. If the “Read code” tool is loaded, the sensor detects the ID codes applied to the components more or less as a side effect, and transmits them to the central computer unit.

The new CS-60 Vision Sensor offers users a high degree of flexibility and productivity: With four exchangeable S-mount M12 standard lenses (with focal widths of 3.6 mm, 8 mm, 16 mm, and 25 mm, as well as a variable focus adjustment by way of the fixed pinhole apertures 4 and 8), a number of tasks with the most various requirements for distance, image detail, resolution and depth of field can be tackled optimally. With the integrated LED high-performance flashes in white and red, the CS-60 Vision Sensor stands for excellent image results. Even at larger distances from the object, ambient light does not cause a disruption. The installation of corresponding color or blocking filters in the lens cover also supports the vision sensor’s independence from ambient light. Thus, demanding tasks, such as quality checking with highly reflective objects or changing backlighting, can be handled even at high speeds. The compact sensor (85 x 45 x 34 mm) can be integrated in nearly all system designs, even in case of tight installation situations. Protected by a robust IP67 housing, the CS-60 Vision Sensor is even reliable in extremely dirty production environments.

“The idea of bringing a compact, robust and versatile basic device with the basic functions of localization, detection, and counting onto the market was decisive for the development of the CS-60 Vision Sensor,” according to Patrik Drexel. Building on this, users, after prior licensing, are supposed to be able to expand the required functions such as measurement and detection/reading of 1D/2D codes by way of simple software uploads. In this way, the new CS-60 Vision Sensor offers users a flexibility that is has not been common to date: If application requirements change, this no longer necessarily means that the sensor has to be replaced. Stocking only one sensor type saves money, and additional costs only arise if additional functionalities are required and the corresponding tools are loaded.

The new CS-60 Vision Sensor stands for simple operation. The PC-based software *nVision-i* developed by di-soric is behind this. The CS-60 Vision Sensor can be configured, commissioned and expanded as needed by way of a self-explanatory, intuitively operational user interface. Users enter the desired parameters for search criteria or limit values for evaluation criteria by way of the user interface. Testing tools can be added and moved by way of a simple drag & drop. The user interface displays measured values, test results and status messages in a clear graphic format. Object images can be checked and analyzed during ongoing operation by way of corresponding displays and with the support of drawing tools. The versatile Profinet connection to the existing PLC component rounds off the flexibility of the CS-60 Vision Sensor. In combination with the *nVision-i* software, the CS-60 Vision Sensor offers a flexible and expandable basis for tailored vision solutions. Upon request, it can have an individually designed user interface with a company-specific look and feel.

“Like the software developed by di-soric, the CS-60 Vision Sensor is practically 100% Made in Germany. After the sensors are installed, they only have to be replaced under exceptional

circumstances. Regular version updates keep them up to date. With subsequent loading of corresponding tools, operators expand their abilities," Patrik Drexel summarizes. If customer requirements extend beyond the limits of common standard tools, di-soric also develops specialized and highly complex solutions on the basis of the *nVision-i* software which can simply be subsequently loaded just like a standard tool.

Characters: 6,711

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Images:

Image 1: Configurable CS-60 Vision Sensor from di-soric: with exchangeable M12 lenses and integrated LED high-performance lighting

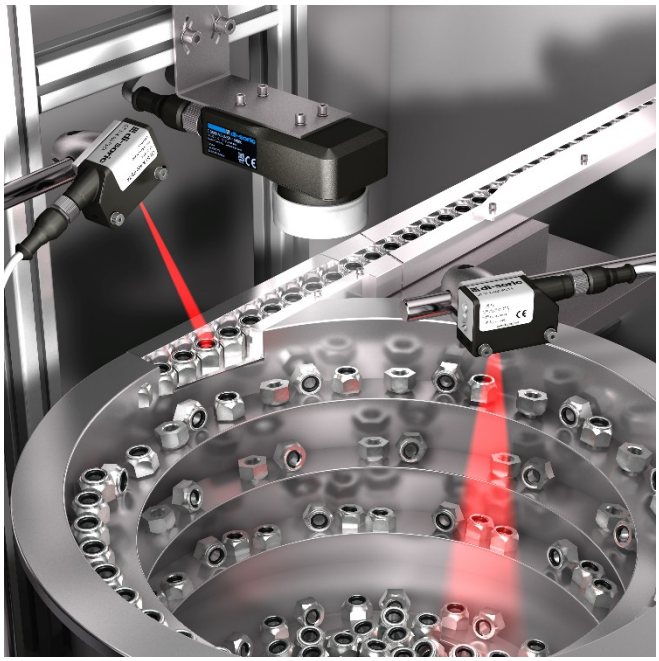

Image 2: Integrated application Vibratory Feeder: Type and presence checking CS-60 Vision Sensor in combination with OT diffuse sensor from di-soric

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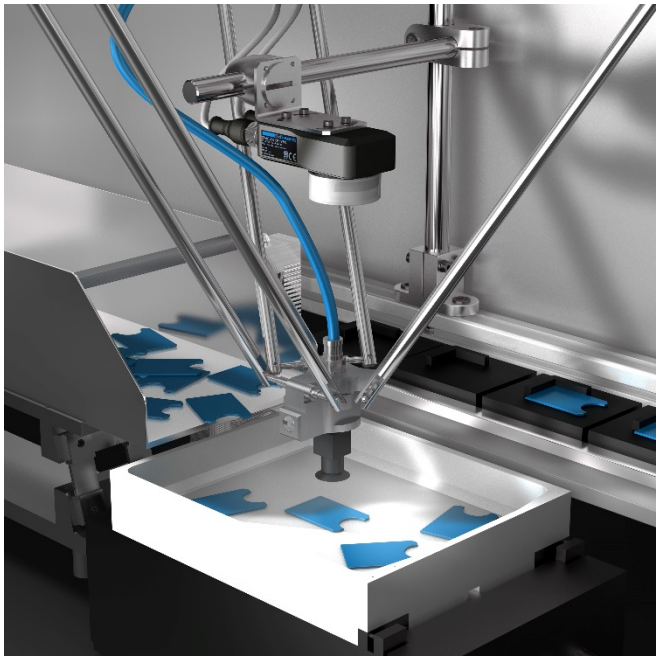

Image 3: CS-60 Vision Sensor: Localization and swivel transfer in pick & place application

More information: www.di-soric.com

Our family-run company group has been an established manufacturer in the area of industrial automation for almost 40 years now. We develop, manufacture and sell a broad spectrum of innovative sensors, high-performance image processing components, high-quality LED machines and signal lighting, as well as products from the area of security technology. Our wide range of products is rounded off with our flexibility for customer-specific solutions.

Our products are primarily used in the areas of assembly & handling, robotic systems, packaging and measurement & testing. And here we focus on the automotive, food & beverage, pharma & cosmetic and electronics industries.

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