ASTECH

So that no one marches to a different beat ...
The new color sensor CROMLAVIEW® CR10

Dear readers,

the ASTECH-team is delighted to present the latest *Sensitive* with news and updates on our LDM, VLM and CROMLAVIEW® product series.

During the last months we have worked steadily on optimizing our product portfolio and its applications in the industrial environment. We are therefore very proud to announce the newest member of our CROMLAVIEW® color sensor family, the CR10.

The CR10 single-channel color sensor is characterized by its perceptual color recognition and an optimal size for the application in limited space. Its operating principle is based on the tristimulus method.

The product series laser distance sensor was also expanded by a new sensor. With the entry-level model LDS10A, a new LED-based sensor for distance measurement has found its way into our product portfolio. In addition, the range of fieldbus interfaces has been expanded by EtherNet/IP.

We hope you enjoy reading our *Sensitive*
Your ASTECH-team

In this edition

CROMLAVIEW® CR10 – Small in size. Great in performance.

CROMLAVIEW® CR10

and reds, as well as green and yellow tones, can be numerically represented as perceived by an observer. The spectral sensitivity is very high in the entire color space.

Equal-spaced color space system with the coordinates L*, a* and b*, where L* denotes the brightness, a* the red-green axis and b* the yellow-blue axis
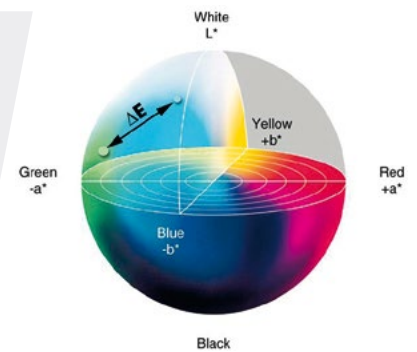
By evaluating color information, color sensors are not only able to detect objects in contrast to simple light barriers or contrast sensors, but also to differentiate them in terms of color with high resolution.

The color differentiation ability of modern color sensors goes beyond the capabilities of the human eye. Color is not a physical measurand, but a human perception, for the description of which standardized measuring specifications exist. For the CROMLAVIEW® color sensors, the tri-stimulus method (see DIN 5033) is used. The measurement object is illuminated with a wideband white-light LED and the reflected light is received and evaluated by means of three photodetectors whose filter curves correspond to the so-called tri-stimulus value function.

This perceptive color processing technology is now available in the new CROMLAVIEW® CR10 single-channel color sensor, which is unique in its market environment, as the spectral selectivity of conventional color sensors is severely limited. In the CROMLAVIEW® CR10, the RGB color space is equalized by transforming the signals evaluated by the tristimulus value function into the L* a* b* color space. This color space is equally spaced, so that a set color tolerance in each area of the color space has almost the same meaning and blue

But what does this mean in practice? The color taught in the color sensor must be distinguishable from other colors, by means of the tolerance setting. The tolerance value set for this purpose is specified in the unit ΔE, which indicates the distance of the color from the tolerance limit. The human color resolving ability starts approximately at ΔE = 1.

The ability to differentiate can be illustrated in practice, using the color samples of a RAL Classic color fan. Even the distinction between Signal white (RAL 9003) and Pure white (RAL 9010) causes problems for conventional color sensors. Visually distinguishing cobalt blue (RAL 5013) and sapphire blue (RAL 5003) is even more difficult and only possible with very good lighting. In the smallest tolerance level (ΔE = 3), however, this is easily possible with the CROMLAVIEW® CR10.

Minimum color difference in the RAL Classic color fan: Cobalt blue and Sapphire blue (Color reproduction influenced due to printing)

In multiteach mode, where tolerance is automatically set by presenting multiple color samples, this level can be reduced even further.

Parameterization is easily done by pressing a push button three times. Despite the small form factor and the easy handling, the sensor is equipped with a considerable, suitable for industrial, use range of functions that can be controlled via input lines. This includes:
• Trigger input in triggered mode,
• Teach-in line for automatic Teach-In,

• Multiteach mode,
• Extension of the output hold time to 50 ms and
• Key lock against unintentional operation.

Thus, the CROMLAVIEW® CR10 is well-suited for applications such as color mark detection, presence control, position detection for sorting tasks and coating control. By fiber coupling, it is possible to work according to the reflection- or transmission-principle (for example, detection of liquids). ■

The new entry-level model LDS10A

To serve as many customer requirements as possible, ASTECH offers with the new LDS10A a entry-level model for distance measurement and object detection applications. The new model is based on the distance sensing technology of the Canadian company LeddarTech whose OEM modules are now firstly used for an industrial grade sensor device. The development of the LDS10A was specially focused on a very robust design with IP 67 housing in combination with easy handling. It is the goal to place the LDS10A in the low-range price segment, which was formerly just served by simple switching sensor devices like light barriers. With the LDS10A it is not just possible to detect the presence of an object, but also where it is located along the detection range.

Besides, the LDS10A is capable to be used for simple distance measurement applications, where the very accurate distance value plays a minor part though the relative changes of the displacement. Example applications for this are the measurement of stack heights or collision avoidance of autonomous driving vehicles in production and storage facilities.

Additionally the distance measurement and object detection of hot-glowing metal surfaces belongs to the key features of the LDS10A.

It also benefits to the LDS10A that it banks on invisible light of a LED light source. Therefore, it is perfectly suited for applications in public places where humans are around. The widened lighting unit flashes the entire surrounding and the sophisticated receiver unit calculates the resulting distance, by the use of enhanced signal processing algorithms.

Equipped with two programmable digital outputs and a scalable analog interface (0/4 mA ... 20 mA), the LDS10A is easy to be integrated into existing machines. The setup of the few parameters is done via serial RS485 interface and Modbus RTU protocol.

All together the entry-level model LDS10A offers a broad range of application opportunities with a very attractive price-performance-ratio. Further information about the new model can be found under *www.astech.de/en/*. ■

EtherNet/IP for the ASTECH product family

In order to meet the market trend, following a further increase in the use of Ethernet-based fieldbuses, ASTECH has expanded its portfolio of interfaces for industrial networks.

According to estimates by HMS (source: *www.anybus.de*), the market share of Industrial Ethernet in 2017 was 46%, which is comparable to that of proven fieldbuses (48%). However, growth rates in Industrial Ethernet have increased significantly in recent years. As a result, there is a greater market share for the future compared to classic fieldbuses such as Profibus. Profinet, as a well-known representative of Industrial Ethernet, has been served by ASTECH for years. The EtherNet/IP protocol is now added to the fieldbus portfolio.

EtherNet/IP was developed as an open standard by Rockwell Automation and the Open DeviceNet Vendor Association (ODVA). Unlike Profinet, which is mainly distributed in Europe, there are a number of installations in the American market. With the introduction of EtherNet/IP to its product family, ASTECH intends to further expand the proportion of installed optically non-contacting measuring instruments in the US market.

With the VLM500 / VLM502, the speed, measuring rate and length are transmitted to the controller using the new interface named IFEI. In addition, the device status, including error status and internal device temperature, is continuously transmitted. External control (trigger signals, standby etc.) of the VLM is possible with the control byte. The built-in web server provides the user with a status page (see figure).

In the field of laser distance measurement technology, the LDM4xEI is a standalone product that contains the EtherNet/IP interface. In addition to the distance measurement value, the LDM4xEI also outputs the time stamp, the error state and the device internal temperature. The control mode defines the measurement mode. In the CROMLAVIEW® color sensor family, the CR200EI and CR210EI devices introduce the EtherNet/IP interface. As with the previous fieldbus interfaces, the status of the switching outputs, the color data and the detection results are transmitted to the controller. The control byte allows, in addition to the triggering of the color sensor, the setting of the teach-in mode. A status display web page is also available on the LDM4xEI and CR2x0EI devices.

To integrate an ASTECH EtherNet/IP meter into a PLC, an EDS file (Electronic Data Sheet) is needed to describe the meter behavior. In the download area (*www.astech.de/download.html*) of the ASTECH website these control files can be downloaded. ◼

Contact

ASTECH Angewandte Sensortechnik GmbH
Schonenfahrerstr. 5, 18057 Rostock, GERMANY
Phone: +49 381 44073-0
Fax: +49 381 44073-20
sensitive@astech.de

www.astech.de

Simply scan the QR Code to open our website and gain information about ASTECH and our products.